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BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, Raleigh, N. C.

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VOL. XIII

APRIL, 1899.

No. 18

The Smallpox Situation.

The smallpox situation in the State is at this present writing (April 21) much the same as a month ago, though somewhat improved. Of the nineteen counties then reported as having the disease, seven, Tyrrell (?) (there is no Superintendent of Health in Tyrrell, we regret to say, and our information is hearsay), Columbus, Wilson, Edgecombe, Halifax, Northampton and Johnston have gotten rid of it, for the time being, at any rate; while in three others (Alamance, Moore and Warren) no new cases have been reported and the patients are about ready to be discharged. New cases since the March reports, however, have appeared in Anson (report from Anson unsatisfactory, but there are apparently several); Union, 2; Mecklenburg, 1; Chatham, one negro family, number attacked not given; Beaufort, 2; Iredell, 1, varioloid, and additional cases in Gates and Wake. So that there are now sixteen counties having smallpox instead of nineteen last

month. In most instances the number of cases is small, the disease is mild in character, and the outbreaks are well managed. On the whole, the condition of affairs is much more satisfactory, for which credit is largely due to the earnest and well-directed efforts of our faithful and efficient Smallpox Inspector, Dr. Henry F. Long, of Statesville. We have received from the communities he has visited nothing but words of commendation of his work and thanks to the Board for sending him.

As we have said before, we find that where all the physicians pull together, and the authorities promptly institute thorough measures and the Health Officer attends to his duties, there has been no trouble in controlling the disease. In this connection, as a suggestion to our medical brethren in other counties, we take much pleasure in printing the following strong and pointed resolutions adopted by the physicians of Edgecombe when smallpox first appeared in that county:

"WHEREAS, A committee of the Auxiliary Board of Health of Edgecombe county, after due investigation, has reported that the disease now prevailing in epidemic form in Hickory Fork township, Edgecombe county, is smallpox; and,

"WHEREAS, Vague rumors have reached the ears of the Board that some physicians are inclined to discredit such report, to discourage the efforts being made to prevent the spread of the contagion, and otherwise embarrass the members of the Board in the discharge of their duties; therefore,

"*Resolved*, 1. That it is the opinion of the Auxiliary Board of Health of Edgecombe county that the epidemic now prevailing in No. 3, or Hickory Fork township, is smallpox.

"2. That any physician who shall be called to suspicious or well-marked cases, and shall fail to report same immediately, shall be dealt with according to law."

This has the right ring. We would remind our readers that the last clause in the resolutions means "shall be fined for each offense not less than ten nor more than twenty-five dollars." Similar action promptly taken would have saved much trouble in one or more counties we could name.

A Word to the Boards of County Commissioners.

At your next regular meeting, the first Monday in May, it will become your duty to elect a County Superintendent of Health, to hold office for one year. We would respectfully call your attention to the prime importance of selecting competent men for that very responsible position—men of intelligence, common sense, energy and conscientiousness. Those of you who have had smallpox in your

counties doubtless realize this as you never did before, and those whose counties have so far escaped would do well to bear it in mind, for the disease is likely to visit you any day. We also beg to call the attention of the Boards of the few counties having no superintendent to their helplessness without such an officer of the law in such a contingency, and to express the hope that they will remedy that condition. The term of office of all superintendents expires and a new term begins, under the law as amended in 1897, the first Monday in May.

We feel sure that in making their selection the commissioners will not be unmindful of the sacrifices made by those superintendents who have to manage outbreaks of smallpox in the loss to their private practice entailed thereby. Unless this pecuniary loss has been offset by liberal extra pay, it seems to us that simple equity demands the re-election of such superintendents, provided they have shown themselves faithful and competent.

The Medical License Law, as Amended.

In 1849 the State Medical Society was organized by a handful of our leading physicians. Ten years afterwards, just forty years ago, it was incorporated by the General Assembly, and in the same bill were embodied provisions for regulating the practice of medicine in this State, requiring a license from a Board of Examiners to be elected by the State Society. The penalty was inability to collect fees at law. According to our recollection, this was, with the exception of a meagre law enacted by the Legislature of New York early in the century, but which fell almost immediately into "innocuous desuetude," and therefore should not count—the first attempt made in the

United States to regulate the practice of medicine. For many years ours was the only law of the kind in the country, and slow old North Carolina was the leader in this important movement.

In 1885, chiefly through the efforts of our predecessor in office, the late deeply lamented Thomas F. Wood, of Wilmington, the law was amended by making it a misdemeanor, punishable by fine and imprisonment to practice without license.

In 1889 the registration feature was added—the act allowing all in practice at the time to register whether licensed or not, but closing the doors finally on January 1, 1892, to all except those holding a license from the Board of Medical Examiners.

While the Acts of 1885 and 1889 greatly strengthened the law, two serious defects remained to be cured. One was the right of any one, whether properly educated in medicine or not, to apply for license, and the other was the practical inability of the Board, owing to the fact that its examinations were necessarily theoretical, to ascertain whether the applicant had received the necessary clinical instruction. To cure these defects the Committee on Legislation of the State Society, believing that public opinion had grown up to this point, and that the time was ripe for making the effort, drew a bill embodying these amendments and secured its enactment by the General Assembly of 1899. It received a unanimously favorable report from the Judiciary Committees of both the Senate and the House, and passed the Senate unanimously, but met with active opposition in the House, much to our surprise, as no one outside the Legislature, or in it, so far as known, was against it. The argument against it was directed chiefly to the provision requiring a diploma from a college requir-

ing an attendance of three years, the speakers holding that it would debar some ambitious young men of limited means from entering the profession, the insinuation being made that the bill was a scheme on the part of the physicians now in practice to form a "doctor's trust" and reduce competition. We know that this idea did not enter the minds of the Society's committee, and that they were actuated by only two motives—the still further elevation of their profession and the more certain protection of the people against incompetency on the part of their medical advisers. Instead of lessening competition, the effect of the amendment will be to increase it by insuring the more thorough preparation of the new men coming in from year to year, while it will not sensibly diminish the number. There is no danger of a failure in the crop of doctors. Admitting that the requirement of a diploma from a respectable college—no college requiring less than three years' attendance can now be called respectable—will prevent a few young men from following the profession of medicine instead of some other calling equally honorable and frequently more lucrative, it should not even be so much as named in comparison with the greater protection to the health and lives of the people of the whole State.

As nothing is so much calculated to advance the cause of the public health as the thorough education of all the members of the medical profession, we feel that the acknowledgments of the Board are due the gentlemen of the Legislature who supported the bill by speech and vote. Among so many friends we would not make any invidious distinctions, but we feel that it would be proper to mention particularly the Hon. M. H. Justice, of Rutherford, who introduced and cham-

pioned the bill in the Senate, securing its passage without a dissenting vote; the Hon. B. E. Reeves, M. D., the Representative from Ashe, who led the fight for it in the House, and the Hon. H. G. Connor, of Wilson, Speaker of the House, who, becoming concerned for the passage of the bill, left the Speaker's chair and advocated it on the floor in a speech of great weight, in the course of which he took occasion to pay an eloquent tribute to the physician—the country doctor in particular.

This is the bill:

AN ACT TO AMEND CHAPTER THIRTY-FOUR OF THE CODE AND CHAPTER ONE HUNDRED AND EIGHTY-ONE OF THE LAWS OF 1889.

The General Assembly of North Carolina do enact:

SECTION 1. That chapter thirty-four of The Code be amended by inserting after the word "applicants" in line two of section three thousand one hundred and twenty-four, the following words: "who shall exhibit a diploma, or furnish satisfactory proof of graduation, from a medical college in good standing requiring an attendance of not less than three years and supplying such facilities for clinical instruction as shall meet the approval of the said Board"; and by adding immediately after said section three thousand one hundred and twenty-four the following words: "*Provided*, that the requirement of three years' attendance shall not apply to those graduating prior to January first, 1900. *Provided further*, that license or other satisfactory evidence of standing as a legal practitioner in another State shall be accepted in lieu of a diploma and entitle to examination."

SEC. 2. That section three thousand one hundred and twenty-five of The Code be amended by inserting after the word

"applicant" in line three, the following words: "who shall comply with the requirements as to graduation prescribed in section three thousand one hundred and twenty-four as amended."

SEC. 3. That section three thousand one hundred and twenty-seven of The Code be amended by adding immediately after said section the following words: "*Provided*, That the said Board may, in its discretion, meet not more than one week before the said society, but always in the same place; and that one additional meeting in each year may be held at some suitable point in the State if deemed advisable."

SEC. 4. That chapter one hundred and eighty-one of the Laws of 1889 be amended by striking out all of section three from the word "words" in line four, down to the word "any" in line nine, the word "likewise" in line eleven and the word "such" in line fourteen; by striking out in section four all from the word "or" in line three to the number "1885" in line six, inclusive, and the words "on oath" in line seven; and by striking out in section seven all after the word "act" in line three.

SEC. 5. That this act shall be in force from and after January first, 1900.

So that the laws, as amended to date, read as follows:

THE LAWS REGULATING THE PRACTICE OF MEDICINE IN NORTH CAROLINA.

(From The Code).

SECTION 3121. MEDICAL SOCIETY OF THE STATE, A BODY POLITIC. PRIVATE LAWS, 1858-'9, c. 258, s. 1:

The Association of regularly graduated physicians, calling themselves "The State Medical Society," is hereby declared to be a body politic and corporate, to be known and distinguished by the name of "The Medical Society of the State of North Carolina."

SEC. 3122. WHO MAY PRACTICE. 1858-'9, c. 258, s. 2:

No person shall practice medicine or surgery, nor any of the branches thereof, nor in any case prescribe for the cure of diseases for fee or reward, unless he shall have been first licensed so to do in the manner hereinafter provided.

SEC. 3123. BOARD OF PHYSICIANS TO CONSIST OF SEVEN. 1858-'9, c. 258, ss. 3, 4:

In order to the proper regulation of the practice of medicine and surgery, there shall be established a Board of regularly graduated physicians, to be known by the title of "The Board of Medical Examiners of the State of North Carolina," which shall consist of seven regularly graduated physicians.

SEC. 3124. DUTY OF BOARD. 1858-'9, c. 258, s. 5:

It shall be the duty of the said Board to examine all applicants who shall exhibit a diploma, or furnish satisfactory proof of graduation, from a medical college in good standing requiring an attendance of not less than three years and supplying such facilities for clinical instruction as shall meet the approval of the said Board, for license to practice medicine or surgery, or any of the branches thereof, on the following branches of medical science: Anatomy, Physiology, Surgery, Pathology, Medical Hygiene, Chemistry, Pharmacy, Materia Medica, Therapeutics, Obstetrics, and the Practice of Medicine, and if on such examination they be found competent, to grant to each applicant a license or diploma, authorizing him to practice medicine and surgery, or any of the branches thereof: *Provided*, five members of the Board shall constitute a quorum and four of those present shall be agreed as to the qualifications of the applicant:

Provided, that the requirement of three years' attendance shall not apply to those graduating prior to January first, 1900. *Provided further*, that license or other satisfactory evidence of standing as a legal practitioner in another State shall be accepted in lieu of a diploma and entitle to examination.

SEC. 3125. TEMPORARY LICENSE. 1858-'9, c. 258, s. 7:

To prevent delay and inconvenience, two members of the Board of Medical Examiners may grant a temporary license to any applicant who shall comply with the requirements as to graduation prescribed in section three thousand one hundred and twenty-four as amended, and make report thereof to the next regular meeting of the Board: *Provided*, such temporary license shall not continue in force longer than the next regular meeting of the Board, and such temporary license shall in no case be granted after the applicant has been refused a license by the Board of Medical Examiners.

SEC. 3126. HOW APPOINTED. 1858-'9, c. 258, s. 9:

The Medical Society shall have power to appoint the Board of Medical Examiners.

SEC. 3127. WHERE AND WHEN TO ASSEMBLE. 1870-'1, c. —, s. 11:

The Board of Medical Examiners shall assemble at the same time and place when and where the Medical Society assembles, which Society shall assemble at least once in every year at such time and place as the said Society, at its next preceding meeting, shall have fixed; and the said Board shall remain in session from day to day until all applicants who may present themselves for examination within the first five days after its meeting shall have been examined and disposed of:

Provided, That the said Board may, at its discretion, meet not more than one week before the said Society, but always in the same place; and that one additional meeting in each year may be held at some suitable point in the State if deemed advisable.

SEC. 3128. OFFICERS, ETC. 1858-'9, c. 258, s. 11 :

The Board of Medical Examiners are authorized to elect all such officers and to frame all such by-laws as may be necessary, and in the event of any vacancy by death, resignation or otherwise, of any member of said Board, the Board, or a quorum thereof, is empowered to fill such vacancy.

SEC. 3129. THE BOARD OF EXAMINERS TO KEEP A RECORD. 1858-'59, c. 258, s. 12 :

The Board of Examiners shall keep a regular record of its proceedings in a book kept for that purpose, which shall always be open for inspection, and shall cause to be entered on a book kept for the purpose the name of each applicant licensed to practice medicine and surgery, and the time of granting the same, together with the names of the members of the Board present, and shall publish the names of those licensed in two of the newspapers published in the city of Raleigh, within thirty days after the granting of the same.

SEC. 3130. LICENSE. 1858-'9, c. 258, s. 13.

The Board shall have power to demand of every applicant thus licensed the sum of ten dollars before issuing a license or diploma, and the sum of five dollars for each temporary license, to be paid to the Secretary of the Board.

SEC. 3131. THE BOARD ; THEIR COMPENSATION. 1870-'1, c. —, s. 14 :

The members of the said Board shall

each receive as a compensation for their services four dollars per day during the time of their session, and in addition thereto their traveling expenses to and from their places of meeting by the most direct route from their respective places of residence, to be paid by the Secretary of the Board out of any moneys in his hands, upon the certificate of the President of the Board of Medical Examiners.

SEC. 3132. PRACTICING WITHOUT LICENSE.

1858-'9, c. 258, s. 15 ; 1885, c. 117 AND 261.

Any person who shall practice medicine or surgery without having first applied for and obtained license from the said Board of Examiners, shall not be entitled to sue for or recover before any court any medical bill for services rendered in the practice of medicine or surgery or any of the branches thereof. And any person who shall begin the practice of medicine or surgery in this State for fee or reward, after the passage of this act, [March 7th, 1885] without first having obtained license from said Board of Examiners, shall not only not be entitled to sue for or recover before any court any medical bill for services rendered in the practice of medicine or surgery, or any of the branches thereof, but shall also be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars nor more than one hundred dollars, or imprisoned at the discretion of the court, for each and every offence: *Provided*, that this act shall not be construed to apply to women who pursue the vocation of a midwife: *And provided further*, that this act shall not apply to any reputable physician or surgeon resident in a neighboring State or coming into this State for consultation with a registered physician resident therein. But this proviso shall not apply to physicians

resident in a neighboring State regularly practicing in this State: *Provided*, that this section shall not apply to physicians who have a diploma from a regular medical college, and were practicing medicine or surgery in this State prior to the seventh day of March, one thousand eight hundred and eighty-five.

SEC. 3133. MAY RESCIND LICENSE. 1858-'9, c. 258, s. 16:

The said Board shall have the power to rescind any license granted by them when, upon satisfactory proof, it shall appear that any physician thus licensed has been guilty of grossly immoral conduct.

SEC. 3134. SECRETARY. 1858-'9, c. 258, s. 17:

The Secretary of the Board of Medical Examiners shall give bond, with good security, to the President of the Board, for the safe-keeping and proper payment of all moneys that may come into his hands.

REGISTRATION. 1889, c. 181, ss. 3 (IN PART), 4, 5, 6, 7:

SEC. 3. That chapter thirty four of The Code be amended by striking from section three thousand one hundred and twenty-five the words "for confirmation," and by adding immediately after section three thousand one hundred and thirty-four the following words: "Any person who shall begin the practice of medicine or surgery in this State after the passage of this act shall personally appear before the Clerk of the Superior Court of the county in which he resides or practices within thirty days after obtaining a license from the Board of Medical Examiners of the State, as now provided by law for registration."

SEC. 4. That any person applying for registration as herein provided shall pro-

duce and exhibit before the Clerk of the Superior Court a license obtained from the Board of Medical Examiners aforesaid; and upon such exhibit being made as aforesaid, the Clerk shall register the date of registration with the name and residence of such applicant in a book to be kept for this purpose in his office, marked "Register of Physicians and Surgeons," and shall issue to him a certificate of such registration under the seal of the Superior Court of the county upon the form furnished him, as hereinafter provided, for which the Clerk shall be entitled to collect from said applicant a fee of twenty-five cents. The person obtaining said certificate shall be entitled to practice medicine or surgery, or both, in the county where the same was obtained, and in any other county in this State; but if he shall remove his residence to another county he shall exhibit the said certificate to the clerk of such other county and be registered, which registration shall be made by said clerk without fee or charge, *Provided*, that any one having obtained a temporary license, as provided in section three thousand one hundred and twenty-five of The Code, shall not be entitled to register, but may practice during the time such license shall remain in force

SEC. 5. That any person who shall practice medicine or surgery in this State without first having registered and obtained the certificate as aforesaid shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than twenty-five dollars nor more than one hundred dollars, or be imprisoned at the discretion of the court, for each and every offence: *Provided*, this act shall not apply to women pursuing the vocation of midwife, nor to reputable physicians or surgeons resident in a neighboring State coming into the State for consultation with a registered physician of this State.

SEC. 6. That any Clerk of the Superior Court who shall register or issue a certificate to any person in any other manner than that prescribed by this act shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not less than two hundred dollars and shall be removed from office.

SEC. 7. That it shall be the duty of the Medical Society of the State of North Carolina to prescribe a proper form of certificate required by this act.

Review of Diseases for March, 1899.

(SEVENTY SIX COUNTIES REPORTING).

Eighty-two counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

MEASLES.—Craven; Durham, 1; Harnett, a great many; Macon, several; New Hanover, 6; Northampton; Pitt, Rowan, 6; Union, 6; Vance, many; Wayne, 8—11 counties.

GERMAN MEASLES.—McDowell.

WHOOPING COUGH.—Ashe, 14; Beaufort, 30; Caldwell, 25; Craven; Pasquotank, 7; Perquimans, general; Rowan, 12; Wayne, 8; Wilson, 10—9 counties.

SCARLET FEVER.—Iredell, 1; New Hanover, 1.

TYPHOID FEVER.—Caldwell, 2; Colum-

bus, 1; Jones, 2; Lincoln, 4; Mecklenburg, 4; New Hanover, 2; Onslow, 1; Rowan, 1; Union, 4; Wayne, 2—10 counties.

MALARIAL FEVER.—Columbus, Cumberland, Gates, Pasquotank, Perquimans.

MALARIAL FEVER, PERNICIOUS.—Pasquotank, 1.

MALARIAL FEVER, HEMORRHAGIC.—Perquimans, 1.

SMALLPOX, (MARCH).—Alamance, 20; Beaufort, 2; Bertie, 1; Chowan, 10; Currituck, 2; Gates, "several"; Halifax, 7, no cases now; Iredell, 1, varioloid, discharged; Moore, 1, discharged; Nash, 4; New Hanover, 1, discharged; Northampton, 8, all discharged April 9; Pasquotank, 10; Perquimans, 1; Wake, 12; Warren, 4; Wayne—20.

INFLUENZA.—Alamance; Ashe and Bertie, general; Caswell; Clay; Craven; Currituck, general; Duplin; Forsyth, general; Gates; Granville; Haywood; Iredell and Jackson, general; McDowell; Macon; Madison and Martin, general; Moore, New Hanover; Pender, mild; Pitt and Stokes, general; Surry; Transylvania; Union; Vance; Wilkes; Yancey—30 counties.

PNEUMONIA.—Alamance; Ashe, in all parts; Clay; Cleveland; Forsyth, in all parts; Jackson, in all parts; Lincoln; Onslow; Pasquotank; Perquimans; Person; Vance; Watanga—13 counties.

MUMPS.—Caswell, Cleveland, Pitt.

ROSEOLA.—Cleveland.

CHOLERA IN FOWLS.—Lincoln.

CHOLERA IN HOGS.—Chowan, Duplin, Mecklenburg.

RABIES IN DOGS.—Columbus.

No diseases are reported from Alexander, Bladen, Buncombe, Carteret, Chatham, Cherokee, Davidson, Davie, Edgecombe, Franklin, Gaston, Henderson, Johnston, Polk, Randolph, Robeson,

Rutherford, Sampson, Swain, Washington and Yadkin.

No reports have been received from Anson, Burke, Catawba, Guilford, Hertford, Mitchell, Richmond and Rockingham.

Summary of Mortuary Report for March, 1899.

(TWENTY-TWO TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population.....	87,048	63,590	150,638
Aggregate deaths....	64	107	171
Representing temporary annual death rate per 1,000	8.8	20.2	13.6
<i>Causes of Death.</i>			
Typhoid fever	0	1	1
Malarial fever.....	2	0	2
Pneumonia.....	14	17	31
Consumption	5	20	25
Brain diseases.....	7	3	10
Heart diseases.....	5	7	12
Neurotic diseases...	3	4	7
Diarrheal diseases	0	3	3
All other diseases..	24	50	74
Accident.....	4	2	6
	64	107	171
Deaths under five years.....	11	24	35
Still-born.....	7	7	14

Diphtheria Antitoxin.

We presume that practically all up-to-date physicians now employ antitoxin in the treatment of diphtheria, and of course all our readers are up to date; but it is pleasant to be backed up in our opinions, and so we are very glad to print the following from the November report of the Health Department of the city of Chicago:

TWENTY-SIX MONTHS OF ANTITOXIN TREATMENT.

Attention is called to the results of the antitoxin treatment of diphtheria in the twenty-sixth months of this work by the Medical Inspectors of the Department.

During November 163 reported cases of diphtheria were investigated; of these 98 were bacterially verified as true diphtheria and were treated with antitoxin. With four cases remaining under treatment from the previous month a total of 102 cases were treated, with 97 recoveries, three deaths and two remaining under treatment at the end of the month. This gives a mortality rate of three per cent. for the completed histories. The gravity of the cases is shown by the large number (ten) requiring intubation. Of the deaths, two occurred among the intubations and all three fatal cases were first seen by the Department Inspectors later than the fourth day of the disease.

The antitoxin treatment of diphtheria by the Department of Health was begun October 5, 1895. During the intervening twenty-six months, the Department physicians have visited and examined 5,739 cases of reported diphtheria. Of this number 3,956 were found to be true diphtheria, and 3,822 of these were treated by the Department—the remaining 134 being treated by family physicians. Out of the total number treated by the Department 3,763 recovered and 259 died. This makes a mortality rate of between six and seven (6.77) in every hundred cases treated.

Prior to the introduction of antitoxin the mortality rate of diphtheria in Chicago averaged about thirty-five in every hundred. At this rate there would have been 1,337 deaths among the number actually attacked, instead of 259.

In the homes where these children were found there were also found 3,663 other children exposed to the infection, and these were immunized or given the preventive dose of antitoxin. Only 30 out of this number were subsequently attacked by the disease, but these all had light attacks and promptly recovered. Of these 3,600 and odd exposed fully one-half would have contracted the disease without the use of antitoxin, and of this number, under the former proportion of mortality, there would have been 635 deaths, which would make a total of 1,972 deaths among these 7,455 children who were actually attacked or exposed.

Instead of this mortality there were only the aforesaid 259 deaths, showing a saving of 1,713 lives during the twenty-six months.

Mortuary Report for April, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.			
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.	Deaths under five years.	Still-born.
Asheville.....	W.	8,000	13,000	15.0	19.4	...	...	...	...	...	...	1	...	...	...	3	...	6	...	...	10	21	5	1
Dr. M. H. Fletcher.	C.	5,000		26.4		...	...	...	...	...	...	3	1	...	...	4	...	3	...	...	11	5	...	...
Charlotte.....	W.	17,153		8.2	13.6	...	...	...	...	...	...	...	2	...	1	...	...	8	...	...	12	23	3	2
Dr. F. O. Hawley.	C.	9,000	26,153	14.7		1	...	...	...	...	...	1	1	...	1	...	...	7	...	...	11	3	3	3
Durham.....	W.	4,000		6.0	12.0	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	2	6	1	2
Dr. J. M. Manning.	C.	2,000	6,000	24.0		...	...	...	...	...	...	1	2	...	...	...	...	1	...	...	4	...	...	...
Fayetteville.....	W.	3,500		10.3	14.0	...	1	...	...	...	...	...	...	...	2	...	...	1	...	...	3	7	1	...
Dr. J. V. McGongan.	C.	2,500	6,000	19.2		...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	4	...	...	...
Goldsboro.....	W.	4,500		10.7	10.3	...	1	...	...	...	...	2	...	1	...	...	...	...	...	...	4	2	1	...
D. J. Broadhurst, Clk.	C.	2,500	7,000	9.6		...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	6	...	...
Greensboro.....	W.	6,000	10,000	4.0	13.2	...	...	...	...	...	...	...	1	...	1	...	...	2	...	...	2	11	...	...
J. S. Michaux, C. Clk.	C.	4,000		27.0		...	...	...	...	...	...	1	2	1	2	...	...	2	1	...	9	...	3	...
Henderson.....	W.	2,250	4,250	5.3	16.9	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	1	6	1	...
Dr. Goode Cheatham.	C.	2,000		30.0		...	...	...	...	...	...	1	1	...	...	...	3	...	...	...	5	...	2	...
Hillsboro.....	W.	400	700	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. C. D. Jones.	C.	300		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Lenoir.....	W.	900	1,200	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. A. A. Kent.	C.	300		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Marion.....	W.	800	1,200	30.0	20.0	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	2	2	...	...
Dr. B. A. Cheek.	C.	400		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Oxford.....	W.	1,200	2,300	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. G. A. Coggeshall.	C.	1,100		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Raleigh.....	W.	8,500		2.8	9.7	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	13	3	1
T. P. Sale, Clerk B. H. C.	C.	7,500	16,000	17.6		...	...	...	...	...	...	4	2	...	...	...	...	5	...	...	11	...	...	...
Rocky Mount.....	W.	1,600	2,600	15.0	9.2	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	2	...	...
Dr. G. L. Wimberley.	C.	1,000		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Salem.....	W.	4,100	4,550	8.8	13.2	...	...	...	...	...	...	2	...	...	...	...	...	1	...	...	3	5	2	2
S. C. Butler, Mayor.	C.	450		53.3		...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	2	...	...	...
Salisbury.....	W.	4,000	6,000	3.0	16.0	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	7	...	...
Dr. W. W. McKenzie.	C.	2,000		42.0		...	...	...	...	...	...	3	2	...	1	...	...	1	...	...	...	8	3	...
Scotland Neck.....	W.	775	1,200	15.5	10.0	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
J. A. Perry, Mayor.	C.	425		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
Tarboro.....	W.	1,200	2,500	10.0	9.6	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...
Dr. L. L. Staton.	C.	1,300		9.2		...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	2	...	...
Warrenton.....	W.	970	1,735	12.4	6.9	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...
Dr. P. J. Macon.	C.	765		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
Washington.....	W.	3,000	5,500	12.0	19.6	...	...	...	...	...	...	2	...	1	...	...	...	...	...	...	3	...	1	...
Dr. Joshua Tayloe.	C.	2,500		28.8		...	...	...	...	...	...	...	1	2	1	...	2	...	...	...	6	9	2	...
Weldon.....	W.	700	1,450	17.1	16.5	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
J. T. Gooch, Mayor.	C.	750		16.0		...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	...
Wilmington.....	W.	11,000	26,500	13.1	17.2	...	...	...	...	...	...	1	1	1	...	...	...	8	1	...	12	...	...	...
Dr. W. D. McMillan.	C.	15,500		20.1		...	...	...	...	...	...	1	4	...	1	...	20	...	...	...	26	38	...	3
Wilson.....	W.	2,500	4,800	4.8	15.0	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...
Dr. Albert Anderson.	C.	2,300		26.1		...	...	...	...	...	...	...	2	3	...	...	...	...	...	...	5	6	...	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month."

*In addition, five non-residents died of consumption.

County Superintendents of Health.

Alamance	Dr. W. R. Goley.	Johnston	Dr. L. D. Wharton.
Alexander	Dr. T. F. Stevenson.	Jones	Dr. S. E. Koonce.
Alleghany		Lenoir	
Anson	Dr. E. S. Ashe.	Lincoln	Dr. L. A. Crowell.
Ashe	Dr. Manley Blivins.	McDowell	Dr. B. A. Cheek.
Beaufort	Dr. Joshua Tayloe.	Macon	Dr. F. L. Siler.
Bertie	Dr. H. V. Dunstan.	Madison	Dr. Jas. K. Hardwicke.
Bladen	Dr. Newton Robinson.	Martin	Dr. W. H. Harrell.
Brunswick	Dr. D. B. McNeill.	Mecklenburg	Dr. C. M. Strong.
Buncombe	Dr. I. A. Harris.	Mitchell	Dr. C. E. Smith.
Burke	Dr. J. L. Laxton.	Montgomery	
Cabarrus		Moore	Dr. Gilbert McLeod.
Caldwell	Dr. A. A. Kent.	Nash	Dr. H. Brantley.
Camden	No Board of Health.	New Hanover	Dr. W. D. McMillan.
Carteret	Dr. F. M. Clark.	Northampton	Dr. H. W. Lewis.
Caswell		Onslow	Dr. E. L. Cox.
Catawba	Dr. D. M. Moser.	Orange	Dr. C. D. Jones.
Chatham	Dr. H. T. Chapin.	Pamlico	No Board of Health.
Cherokee	Dr. S. C. Heighway.	Pasquotank	Dr. I. Fearing.
Chowan	T. J. Hoskins.	Pender	Dr. George F. Lucas.
Clay	Dr. W. E. Sanderson.	Perquimans	Dr. C. C. Winslow.
Cleveland	Dr. R. C. Ellis.	Person	Dr. J. A. Wise.
Columbus	Dr. J. F. Harrell.	Pitt	Dr. E. A. Moyer.
Craven	Dr. L. Duffy.	Polk	Dr. H. D. Shankle.
Cumberland	Dr. J. Vance McGougan.	Randolph	Dr. T. T. Ferree.
Currituck	Dr. H. M. Shaw.	Richmond	Dr. W. M. Fowlkes.
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. W. L. Crump.
Duplin	Dr. J. W. Blount.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	
Forsythe	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	Dr. R. C. Smith.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. G. A. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. W. J. Judd.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. T. B. Williams.
Harnett	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. J. Howell Way.	Watauga	Dr. W. B. Council.
Henderson	Dr. J. G. Waldrop.	Wayne	Dr. Jas. H. Powell.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. W. White.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. J. H. Wolff.	Yancey	Dr. J. L. Ray.

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough ----- Typhoid Fever -----

Measles ----- Typhus Fever -----

Diphtheria ----- Yellow Fever -----

Scarlet Fever ----- Cholera -----

Pernicious Malarial Fever ----- Smallpox -----

Hemorrhagic Malarial Fever ----- Cerebro-spinal Meningitis -----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:-----

----- M. D.

----- 189-----

----- N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
W. H. HARRELL, M. D., Williamston.
JOHN WHITEHEAD, M. D., Salisbury.

C. J. O'HAGAN, M. D., Greenville.
J. D. SPICER, M. D., Goldsboro.
J. L. NICHOLSON, M. D., Richlands.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

MAY, 1899.

No. 2.

Recent Legislation In Regard To Water Supplies.

As some of our readers may remember, we prepared and had introduced in the Legislature of 1897 a bill entitled "An Act to Protect Public Water Supplies," but action upon it could not be secured. Modifying it somewhat, so as to make it cover the bacteriological examination of suspected private supplies, for which our regular appropriation is insufficient, we had it introduced in the last General Assembly, and finally secured its passage, though in an emasculated form. The little appropriation of five hundred dollars asked for to cover the cost of the biological tests was vigorously assailed and stricken out in the House, but no further damage was inflicted upon it there. In the Senate, however, the three sections covering, particularly, the policing of the watersheds, were stricken out, on the ground that they conferred too much power upon the city authorities; that an

attempt by a city policeman to enforce their observance upon a resident of the country would stir up a hornet's nest. Recognizing the unfortunate feeling of antagonism against the towns, cherished by many of the people residing in the country—a feeling which seems to have become more intense of recent years—we were compelled to admit the force of this objection, and yield as gracefully as we could. Practically, however, under the law as amended, taken in connection with the general provisions for protecting water supplies embodied in the Act in Relation to the Board of Health, all necessary machinery is furnished for preventing the infection of the water supplies if the city authorities and the water companies really desire to do it. The provisions referred to are to be found in the following two sections from the general act:

"SEC. 20. Whoever wilfully or maliciously defiles, corrupts or makes impure any well, spring or other source of water-supply or reservoir, or destroys or injures

any pipe, conductor of water or other property pertaining to an aqueduct, or aids and abets in any such trespass, shall be guilty of a misdemeanor, and on conviction shall be fined not exceeding one thousand dollars or imprisoned not exceeding one year.

"SEC. 21. Any householder in whose family there is to his knowledge a person sick of cholera or typhoid fever, who shall permit the bowel discharges of such sick person to be emptied without first having disinfected them according to the instructions to be obtained from the attending physician or the county superintendent of health shall be guilty of a misdemeanor, and upon conviction shall be fined not less than two nor more than twenty-five dollars, or imprisoned not less than ten nor more than thirty days. And in cases where such undisinfected discharges are emptied on the watershed of any stream or pond furnishing the source of water-supply of any public institution, city or town the penalty shall be a fine of not less than twenty-five nor more than fifty dollars, or imprisonment for not more than thirty days. And any physician attending a case of cholera or typhoid fever who refuses or neglects to give the proper instructions for such disinfection as soon as the diagnosis is made shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than ten nor more than fifty dollars."

Taking these two sections together with the recent act which we give below, it will be seen that all that is required to protect the water-supply from the specific infection of typhoid fever or cholera, which is practically the only infection to be dreaded, is for some one to lodge a complaint against the violator of the law and prosecute the case. The difficulty experienced in such cases is to find some one to make complaint, it being a very disagreeable thing to do, and not any particular person's duty. We know that an employee of each water company is not only authorized but ordered to make inspections of the watersheds, and as it is clearly to the pecuniary interest of the water company, whether private or municipal, to

prevent the poisoning of the water, we have a hope that the matter will be attended to when attention is demanded.

Under the last clause of section 2, we would suggest the propriety of distributing among the residents upon watersheds of public supplies, a copy of this BULLETIN, so that each householder may begin by learning what the law is. We will gladly supply the water companies with the necessary copies upon application thereof. "The necessary directions for the proper sanitary care of his premises" are summed up in this one sentence: Such an arrangement of privies, stables and pig-pens as will prevent the filth thereof from being washed into the supply by rains. For the country home there is no better arrangement than the tub and dry earth plan and the burial of the contents at a safe distance from the family well or spring. From time to time we expect to send the superintendents of water companies "literature on pertinent sanitary subjects," and we hope they will interest themselves in seeing that it is distributed. The following is a copy of the law:

[Laws of 1899—Chapter 670.]

AN ACT TO PROTECT WATER SUPPLIES.

The General Assembly of North Carolina do enact:

SECTION 1. In the interest of the public health every person or company selling water to the public for drinking and household purposes shall take every reasonable precaution to protect from contamination and assure the healthfulness of such water; and any provisions in any charters heretofore granted to such persons or companies in conflict with the provisions of this act are hereby repealed.

SEC. 2. Those water companies deriving their supply from lakes or ponds or from small streams not more than fifteen miles in length shall have a sanitary inspection of the entire watershed not less under any

circumstances than once in every three calendar months and a sanitary inspection of any particular locality on said watershed at least once in each calendar month, whenever in the opinion of the board of health of the city or town to which the water is supplied, or when there is no such local board of health in the opinion of the county superintendent of health or in the opinion of the state board of health, there is reason to apprehend the infection of the water by that particular locality. Said companies shall have made a sanitary inspection of any particular locality on said watershed at least once in each week whenever in the opinion of the board of health of the city or town to which the water is supplied, or when there is no such local board of health in the opinion of the county superintendent of health, or in the opinion of the state board of health, there is special reason to apprehend the infection of the water from that particular locality by the germs of typhoid fever or cholera.

The inspection of the entire watershed as herein provided for shall include a particular examination of the premises of every inhabited house on the watershed, and in passing from house to house a general inspection for dead bodies of animals or accumulations of filth. It is not intended that the phrase "entire watershed" shall include uninhabited fields and wooded tracts that are free from suspicion.

The inspection shall be made by an employee of and at the expense of the said water company in accordance with reasonable instructions as to method to be furnished by the secretary of the state board of health. The said sanitary inspector shall give in person to the head of each household on said watershed, or in his absence to some member of said household, the necessary directions for the

proper sanitary care of his premises. It shall further be the duty of said inspector to deliver to each family residing on the watershed such literature on pertinent sanitary subjects as may be supplied him by the municipal health officer or by the secretary of the state board of health.

SEC. 3. In case of those companies obtaining their supply of water from rivers or large creeks having a minimum flow of ten million gallons the provisions of section two shall be applied to the fifteen miles of watershed draining into the said river or creek next above the intake of the water works.

SEC. 4. Failure on the part of any water company to comply with the requirements of sections two and three shall be punished by a deduction from any charges against the city or town supplied of twenty-five dollars for each and every such failure: *Provided*, that in no one year shall the sum of such forfeitures exceed five hundred dollars. When the water works are owned and operated by the city or town failure on the part of the municipal officials having in charge the management of the water works to comply as above shall be a misdemeanor and punished by a fine of not less than ten nor more than twenty-five dollars or by imprisonment for not less than ten nor more than thirty days: *Provided*, the said official do not prove to the satisfaction of the court that in spite of reasonable effort and diligence on his part he was prevented directly or indirectly by his superiors from doing his duty in this respect, in which case said superior officer or officers shall be deemed guilty of a misdemeanor and punishable by a fine of not less than fifty nor more than two hundred dollars or by imprisonment for not less than one nor more than six months.

SEC. 5. Every city or town having a public water supply shall at its own ex-

pense have made at least once in every three months by one of its own officials a sanitary inspection of the entire watershed of its water supply, and it shall be the duty of the said official making such inspection to report to the mayor any violation of this act.

SEC. 6. Every water company, whether owned by private individuals or corporations or by the municipality, shall have made not less frequently than once in every three months at its own expense both a chemical and a bacteriological examination of its water drawn from a faucet used for drinking purposes, packed and shipped in accordance with the instructions to be furnished by the secretary of the state board of health: *Provided*, that when a supply is from artesian wells the analysis shall be made in the discretion of the secretary of the state board of health, but not oftener than once in each year at the expense of the water company.

SEC. 7. As a check and guarantee of the faithful performance of the requirements laid down in the preceding section of this act the state board of health shall make or have made by its authorized agents such inspections of the watersheds and such chemical and bacteriological examinations of the public water supplies of the state as may be deemed necessary to insure their purity. Should such inspections or examinations show conditions dangerous to the public health the secretary of the state board of health shall notify the mayor, the municipal health officer and the superintendent or manager of the water works at fault and demand the immediate removal of said dangerous conditions. If at the end of thirty days after the service of said notice and demand the said dangerous conditions have not been removed to the extent that due diligence

could accomplish such removal, the said secretary shall have printed in one or more of the local newspapers a plain statement of the facts for the information and protection of the citizens using the water.

SEC. 8. Each sanitary inspector herein provided for is hereby authorized and empowered to enter upon any premises and into any building upon his respective watershed for the purpose of making the inspections herein required.

SEC. 9. This act shall be in force from and after its ratification.

Ratified the 8th day of March, A. D. 1899.

Review of Diseases for April, 1899,

[SEVENTY-FIVE COUNTIES REPORTING.]

Eighty-four counties had Superintendents of Health May 1st:

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of April the following diseases have been reported from the counties named:

MEASLES.—Edgecombe, 50; Halifax, 2; Macou; Nash; New Hanover, 18; Pitt; Rockingham; Rowan, 6; Union, epidemic; Vance, several—10 counties.

GERMAN MEASLES.—Burke, in nearly all parts; Gaston; Mecklenburg; Orange; Sampson.

WHOOPIG COUGH.—Caldwell, 6; Pender, 1; Franklin; Perquimans, 50; Pitt; Vance, many.

SCARLET FEVER.—Currituck, 1; Wake, 2; Warren, 2.

DIPHTHERIA.—Rockingham.

TYPHOID FEVER.—Beaufort, 1; Burke, 1; Clay, 3; Columbus, 1; Iredell, a few cases; Jackson, 3; Jones, 1; Martin, 2; New Hanover, 1; Perquimans, 1; Stokes, 3; Surry, 1; Union, 2; Wake 1; Watauga, 2; Yancey, 1—16 counties.

MALARIAL FEVER.—Caswell; Columbus; Gates; Halifax; Johnston; Jones; New Hanover; Perquimans—8 counties.

MALARIAL FEVER, PERNICIOUS.—Jones.

MALARIAL FEVER, HEMORRHAGIC.—Halifax, 2; Johnston, 2; Perquimans, 2.

SMALLPOX (April).—Anson, 2; Bertie, 1; Chatham, 2; Chowan, 15; Currituck, 1; Gates, several; Hertford, 2; Iredell, 1; Martin, 3; Mecklenburg, 2; Moore, 4; Nash, 7; Union, 8; Wake, 43—14 counties.

INFLUENZA.—Alamance, Bladen, Craven, Gaston, Iredell, McDowell, Macon, Moore, New Hanover, Sampson, Rockingham, Stokes, Surry, Transylvania, Union, Vance, Washington—17 counties.

MUMPS.—Cleveland, Craven, Johnston.

MENINGITIS, CEREBRO-SPINAL.—Buncombe, 3.

PNEUMONIA.—Alamance, Ashe, Craven, Gaston, Surry, Transylvania, Washington, Watauga, 10 cases—8 counties.

ROSEOLA.—Caldwell, Davidson, Granville, Halifax, Johnston, McDowell, Nash, Rockingham—8 counties.

VARICELLA.—Davidson, Nash.

DIARRHOEAL DISEASES.—Gaston, Halifax, Jackson, Lincoln, Sampson.

CHOLERA IN HOGS—Nash.

STAGGERS IN HORSES.—Edgecombe.

No diseases are reported from Alexander, Carteret, Davie, Durham, Greene, Haywood, Henderson, Madison, Mitchell, Northampton, Onslow, Pasquotank, Person, Randolph, Robeson, Rutherford, Wilkes and Yadkin.

No reports have been received from Caswell, Catawba, Cherokee, Cumberland, Duplin, Forsyth, Guilford, Swain, Wayne and Wilson.

Summary of Mortuary Report for April, 1899.

(TWENTY-ONE TOWNS).

Only those towns from which certified reports are received are included.

	<i>White. Col'd. Total.</i>		
Aggregate population	81,349	61,140	142,489
Aggregate deaths...	64	86	150
Representing temporary annual death rate per 1,000	9.4	16.9	12.6
<i>Causes of Death.</i>			
Typhoid fever	0	1	1
Malarial fever.....	0	5	5
Whooping-cough...	1	0	1
Measles.....	1	0	1
Pneumonia.....	11	15	26
Consumption	7	4	11
Brain diseases.....	5	5	10
Heart diseases.....	6	1	7
Neurotic diseases...	3	3	6
Diarrhoeal diseases	0	5	5
All other diseases..	30	44	74
Accident.....	0	5	3
	64	86	150
Deaths under five years.....	18	30	48
Still-born.....	5	14	19

Mortuary Report for April, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.		Deaths under five years.	Still-born.
		By Races.	Total.																		By Races.	By Towns.		
Asheville	W.	8,000		10.5																	7	1		1
Dr. M. H. Fletcher.	C.	5,000	13,000	14.4	12.0																6	13	2	4
Charlotte	W.	17,153		5.6																	8	20	3	2
Dr. F. O. Hawley.	C.	9,000	26,153	16.0	9.2	1			1				1		1		4				12	20	3	2
Durham	W.	4,000		7.5								1			1		1				3	5		
Dr. J. M. Manning.	C.	2,000	6,000	10.0	8.3												2				2	5		
Goldsboro	W.	4,500		16.0								1	1		1		3				6		2	
D. J. Broadhurst, Clk.	C.	2,500	7,000	19.2	17.1							1					3				4	10	2	
Greensboro	W.	6,000		8.0								1	1		1		1				4	13		
J. S. Michaux, C. Clk.	C.	4,000	10,000	27.0	15.6			1				3					4				9	13	4	
Henderson	W.	2,250		10.7								1	1								2			
Dr. Goode Cheatham.	C.	2,000	4,250	0.0	10.3																0	2		
Hillsboro	W.	400		30.0													1				1			
Dr. C. D. Jones.	C.	300	700	40.0	34.3												1				1	2		
Lenoir	W.	900		0.0																	0			
Dr. A. A. Kent.	C.	300	1,200	40.0	10.0										1						1	1		
Marion	W.	800		15.0													1				1			
Dr. B. A. Cheek.	C.	400	1,200	0.0	10.0																0	1		
Monroe	W.	1,800		6.7									1								1			
Dr. J. M. Blair.	C.	600	2,400	0.0	5.0																0	1		
Oxford	W.	1,200		10.0										1							1			
Dr. G. A. Coggeshall.	C.	1,100	2,300	21.8	15.6							1					1					2	3	1
Raleigh	W.	8,500		11.3								2	2				4				8		3	1
T. P. Sale, Clerk B. H.	C.	7,500	16,000	16.0	13.5							3			1		5	1			10	18	7	1
Rocky Mount	W.	1,600		15.0								1					1				2			
Dr. G. L. Wimberley.	C.	1,000	2,600	12.0	13.8												1				1	3		
Salisbury	W.	4,000		6.0									1				1				2			
Dr. W. W. McKenzie.	C.	2,000	6,000	0.0	4.0																0	2		
Scotland Neck	W.	775		0.0																	0			
J. A. Perry, Mayor.	C.	425	1,200	0.0	0.0																0	0		
Tarboro	W.	1,300		18.5								1					1				2			
Dr. L. L. Staton.	C.	1,200	2,500	0.0	9.6												1				0	2		
Warrenton	W.	970		0.0																	0			
Dr. P. J. Macon.	C.	765	1,735	0.0	0.0																0	0		
Washington	W.	3,000		8.0									1				1				2		3	
Dr. Joshua Tayloe.	C.	2,500	5,500	33.6	19.4		2						2		1	2					7	9		
Weldon	W.	700		0.0																	0			
J. T. Gooch, Mayor.	C.	750	1,450	0.0	0.0																0	0		3
Wilmington	W.	11,000		15.3		2						2		1	1	1	9				14		5	1
Dr. W. D. McMillan.	C.	15,500	26,500	22.4	19.4				1			4		1	1	1	19				29	43	9	4
Wilson	W.	2,500		0.0																	0			
Dr. Albert Anderson.	C.	2,300	4,800	14.3	5.0							1					1				2	2		1

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition, five non-residents died of consumption.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Jones	Dr. S. E. Koonce.
Alexander	Dr. T. F. Stevenson.	Lenoir	
Alleghany		Lincoln	Dr. L. A. Crowell.
Anson	Dr. E. S. Ashe.	McDowell	Dr. B. A. Cheek.
Ashe	Dr. Manley Blevins.	Macon	Dr. F. L. Siler.
Beaufort	Dr. P. A. Nicholson.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin	Dr. W. H. Harrell.
Bladen	Dr. Newton Robinson.	Mecklenburg	Dr. C. M. Strong.
Brunswick		Mitchell	Dr. C. E. Smith.
Buncombe	Dr. I. A. Harris.	Montgomery	
Burke	Dr. J. L. Laxton.	Moore	Dr. Gilbert McLeod.
Cabarrus		Nash	Dr. J. P. Battle.
Caldwell	Dr. A. F. Houck.	New Hanover	Dr. W. D. McMillan.
Camden	No Board of Health.	Northampton	Dr. H. W. Lewis.
Carteret	Dr. F. M. Clark.	Onslow	Dr. E. L. Cox.
Caswell	Dr. S. A. Malloy.	Orange	Dr. C. D. Jones.
Catawba	Dr. Geo. H. West.	Pamlico	No Board of Health.
Chatham	Dr. H. T. Chapin.	Pasquotank	Dr. H. T. Aydtlett.
Cherokee	Dr. S. C. Heighway.	Pender	Dr. George F. Lucas.
Chowan	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. W. E. Sanderson.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt	Dr. C. O'H. Laughing-
Columbus	Dr. J. F. Harrell.		house.
Craven	Dr. R. DuVal Jones.	Polk	Dr. C. J. Kenworthy.
Cumberland	Dr. J. Vance McGongan.	Randolph	Dr. T. T. Ferree.
Currituck	Dr. H. M. Shaw.	Richmond	
Dare		Robeson	Dr. H. T. Pope.
Davidson	Dr. John Thames.	Rockingham	Dr. Sam Ellington.
Davie	Dr. James McGuire.	Rowan	Dr. W. L. Crump.
Duplin	Dr. J. W. Blount.	Rutherford	Dr. W. A. Thompson.
Durham	Dr. John M. Manning.	Sampson	Dr. R. E. Lee.
Edgecombe	Dr. L. L. Staton.	Stanly	
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	Dr. R. C. Smith.	Transylvania	Dr. M. M. King.
Graham	No Board of Health.	Tyrrell	No Board of Health.
Granville	Dr. G. A. Coggeshall.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. Goode Cheatham.
Guilford	Dr. A. E. Ledbetter.	Wake	Dr. R. B. Ellis.
Halifax	Dr. I. E. Green.	Warren	Dr. T. B. Williams.
Harnett	Dr. O. L. Denning.	Washington	Dr. W. H. Ward.
Haywood	Dr. F. M. Davis.	Watauga	Dr. W. B. Council.
Henderson	Dr. J. G. Waldrop.	Wayne	Dr. Jas. H. Powell.
Hertford	Dr. John W. Tayloe.	Wilkes	Dr. J. W. White.
Hyde	No Board of Health.	Wilson	Dr. C. B. Walton.
Iredell	Dr. Henry F. Long.	Yadkin	Dr. M. A. Royall.
Jackson	Dr. J. H. Wolf.	Yancey	Dr. J. M. Fairchild.
Johnston	Dr. L. D. Wharton.		



[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough ----- Typhoid Fever -----

Measles ----- Typhus Fever -----

Diphtheria ----- Yellow Fever -----

Scarlet Fever ----- Cholera -----

Pernicious Malarial Fever ----- Smallpox -----

Hemorrhagic Malarial Fever ----- Cerebro-spinal Meningitis -----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

----- M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
W. H. HARRELL, M. D., Williamston.
JOHN WHITEHEAD, M. D., Salisbury.

C. J. O'HAGAN, M. D., Greenville.
J. D. SPICER, M. D., Goldsboro.
J. L. NICHOLSON, M. D., Richlands.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

JUNE, 1899.

No. 3.

Annual Meeting of the Board.

As the law requires the annual meeting of the Board to be held at the same time and place as that of the State Medical Society, it was held this year at Asheville on Tuesday and Wednesday, 30th-31st May. It was the most satisfactory meeting we have had for years. The conjoint session with the Society was well attended by comparison with many former meetings of the kind, and those present showed a gratifying interest in the proceedings, listening attentively to the reports of the President, as representing the committee appointed to investigate the smallpox situation in some of the Eastern counties in the latter part of February; of the Secretary of the year's work, and of Smallpox Inspector Long—and taking part in the discussions in an earnest manner.

The term of office of all the members expiring at this meeting the President

announced the appointments by His Excellency, the Governor, to be C. J. O'Hagan, M. D., of Greenville; J. L. Nicholson, M. D., Richlands; Albert Anderson, M. D., Wilson; A. W. Shaffer, Sanitary Engineer, Raleigh, and Richard H. Lewis, M. D., Raleigh. These were all reappointments with the exception of Dr. Anderson, who was selected to fill the vacancy caused by the resignation of Dr. Spicer. The election of the four members assigned to the Medical Society resulted in the unanimous choice of Drs. Geo. G. Thomas, Wilmington; S. Westray Battle, Asheville, re-elected; Henry W. Lewis, Jackson, and H. H. Dodson, Milton. While the voluntary retirement of Drs. Whitehead and Harrell was to be regretted, it was extremely gratifying that the Society acted up to the high standard it has always observed in its selections for this Board.

Attention being called to the helpless condition of those counties having no

Superintendent of Health in case of an outbreak of smallpox within their borders, and particularly to the condition of affairs in Gates county, whose County Commissioners failed to re-elect a Superintendent on the first Monday in May, as required by law, notwithstanding the prevalence of smallpox in the county at the time, the Secretary was instructed to ask the opinion of the Attorney-General as to the proper method to be pursued to secure compliance with the law in this matter. In obedience to these instructions the following letter was addressed to the Attorney-General and the subjoined reply received:

RALEIGH, June 8th, 1899.

HON. Z. V. WALSER, *Attorney-General*.

DEAR SIR:—At the recent annual meeting of the State Board of Health at Asheville I was instructed to obtain your opinion as to the proper course to be pursued to secure the performance by County Commissioners of the duty laid upon them in section 5 of chapter 214, Laws of 1893, viz.: the election of a County Superintendent of Health.

In view of the prevalence of smallpox in the State at present, and the still greater prevalence probable next winter, and of the fact that the County Superintendent of Health is the only official empowered by law to take charge of outbreaks of contagious diseases, it is unnecessary to say that the interests of the people require such an official in every county. There are eleven counties without a Superintendent.

An early reply would oblige,

Yours very truly,

RICHARD H. LEWIS, M. D.,
Secretary.

LEXINGTON, N. C., June 10, 1899.

DR. RICHARD H. LEWIS,

*Secretary State Board of Health,
Raleigh, N. C.*

DEAR SIR:—In reply to your letter of recent date, I will say that Section 711 of The Code makes it a misdemeanor for a County Commissioner to neglect to perform any duty required of him by law, and subjects him to a penalty of \$200 for each offence. I have no doubt that if you will call the attention of the County Commissioners to the duty imposed upon them by section 5, chapter 214, Acts 1893, of electing a County Superintendent of Health, that they will comply promptly therewith.

Very respectfully,

ZEB. V. WALSER,
Attorney-General.

Owing to press of private business, Dr. Henry F. Long offered his resignation as smallpox inspector. The Board, however, appreciated his services so highly that they declined to accept it, but relieved him from active duty for the present, preferring to hold him in reserve for the greater work in his line anticipated for next winter. Dr. Joshua Tayloe of Washington was elected an inspector, and was ordered to make immediately a thorough investigation of the smallpox situation in Gates and Currituck counties. [Dr. Tayloe reports a deplorable condition in Gates county—thirty or more families, both white and colored, infected and no efforts whatever being made to check the spread of the disease. He interviewed the local authorities, county and municipal, and stirred up enough interest to bring about a conference of the Board of County Commissioners, with all the physicians in the

county. This conference was barren of results, we deeply regret to say, beyond a declared intention to furnish vaccine virus free to any one who would use it. The Board of Commissioners absolutely refused to elect a Superintendent of Health, on the ground that "it would be giving one man too much authority." It may be that the three Commissioners of Gates county are wiser and more humane than three or four hundred other County Commissioners in the State, or than the members of several successive Legislatures, which defined and confirmed the powers of the Superintendent of Health, but we doubt if the people of their stricken county think so—if they do now, they will not before another year rolls around—and we are very sure that an enlightened public does not. The situation in Currituck, which has a superintendent of health, was much more satisfactory, although there were at the time of Dr. Tayloe's visit eight or ten cases.]*

While we have given our readers month by month a statement of the smallpox situation as it was at the time, we believe that a recapitulation, so that they may view the subject *en bloc*, would be of interest. We therefore extract from the annual report of the Secretary to the conjoint session so much of it as bears upon

SMALLPOX IN NORTH CAROLINA.

The first case occurred in Wilmington on January 12th, 1898, in the person of a negro train-hand on the Atlantic Coast Line, whose run was into South Carolina, in which State the disease was prevailing—warning of which was given in the BULLETIN for December, 1897. Prior to May 1, 1898, it showed itself in Charlotte,

five cases, two deaths, all colored, origin South Carolina; in Salisbury, one case, colored mail-agent running between that point and Knoxville, origin Tennessee; in Buncombe, two cases, colored, origin South Carolina; Alamance, two cases, colored, origin Alabama; Clay, ten cases, white, origin Georgia. Since May 1st the disease has occurred in all the counties named except Clay, and in thirty-two other counties, making in all thirty-eight counties that have been visited by it, the infection in most outbreaks coming from Norfolk, Va., and vicinity. The official reports for the month of April show smallpox still present in the following counties: Anson, 2; Bertie, 1; Chat-ham, 2; Chowan, 15; Currituck, 1; Gates, several; Hertford, 2; Iredell, 1; Martin, 3; Mecklenburg, 2; Moore, 4; Nash, 7; Union, 8; Wake, 43—14 counties.

While new outbreaks have been reported since May 1st, 1899, in Catawba (Hickory), Edgecombe (Rocky Mount), Gates, Rockingham (Mayodan), and Burke (Morganton), the last named is the only one which does not appear in the tabulated statement given below. There have been so far fourteen cases in Morganton, with two deaths among the whites. The reporter did not separate the races.

The total number of cases from the introduction of the disease into the State on January 12th, 1898, to May 1st, when the report closed, was 616, with seventeen deaths, or 2.76 per cent. Of this number 162 were whites, with eight deaths, 4.93 per cent., and 454 colored, with nine deaths, 1.97 per cent. This death rate is somewhat larger than appears to have been the case in some other States whose

*Since the above was written a letter has been received from the Chairman of the Board of Commissioners of Gates County giving reasons of some weight for the failure to elect a Superintendent heretofore, and promising that one would be elected in a few days. He also asked for advice as to the management of the situation, and the outlook is now much brighter.

Since we went to press notice has been received of the election of Dr. W. O. P. Lee as Superintendent of Health of Gates County.

records can be depended on. Ohio, for instance, where of 770 cases only seven died, or less than 1 per cent. Indeed, our smallpox death rate has been quite respectable in view of the fact that many wiseacres have persisted in asserting that the disease was not smallpox, but "chickenpox," "Cuban itch," "elephant itch," etc. But still the mortality was very low, and that very fact increased the difficulty of managing the outbreaks by rendering the people more indifferent to the importance of vaccination. Formerly, when asked my opinion as to the best method of getting the people vaccinated, I would say: "A case of smallpox." Now I must say a number of cases, with several deaths.

In view of the rapid spread of the disease during the latter part of February it was thought advisable by the President of the Board to investigate the matter by a personal inspection of some of the infected districts on the part of a committee from the Board. This inspection of several of our Eastern counties was made by himself and Dr. O'Hagan, and the conditions were found to be such that he called a meeting of the Board at Raleigh on March 5th to consider them. At this meeting the report of the committee was received and the situation fully discussed, the unanimous conclusion being that the time had arrived for calling upon the Governor for authority to expend part of the emergency fund appropriated in section 29 of the Act in Relation to the Board of Health. In pursuance of this decision the members of the Board present waited upon His Excellency and laid the facts before him. He showed his intelligent appreciation of the situation by promptly giving the authority desired. Reassembling, it was decided to employ a competent physician

who should, under the title of Smallpox Inspector, visit infected points, decide doubtful diagnoses, interview the local health officers, explain to the county and municipal authorities the gravity of the situation, and the best way of meeting it, and impress upon the people the overwhelming importance of vaccination. Dr. Henry F. Long, of Statesville, Superintendent of Health of Iredell County, in view of his intelligent management of a considerable outbreak of smallpox in his own county, was selected for the place. The results have shown the wisdom of the action of the Board and of their selection, as the unanimous testimony from the points he has visited has been that his presence and advice have been of great assistance. I am satisfied that the State never spent the same amount of money to better advantage than the \$395.85 spent in this cause from March 13th to May 1st.

Owing to the blessed fact that epidemics of infectious disease of any magnitude have been extremely rare in our State, our people are unaccustomed to the restraints and duties incident to the proper management of them according to the principles of modern hygiene, and this fact, combined with the mildness of the disease, engendering indifference to its dangers—such indifference in some instances at first, before the public were generally awakened to the fact that genuine smallpox was among us, that the patients not feeling sick much would not call in a physician, increased the difficulties of management. The exposures resulting from this were necessarily very numerous, and why so many unvaccinated persons escaped, as unquestionably did, is a mystery. But strange as it may seem, the greatest trouble has come from our own profession. In some

instances it arose from inexperience with the disease and the consequent failure to make promptly the correct diagnosis and report the case to the health officer. This was, perhaps, in some instances excusable, although it must be said that a knowledge of, or a regard for, the elementary principles of sanitary management would have insured the taking of the proper precautions. This, however, was a small matter, compared to obstructions to the proper control of the disease which arose in another way, caused probably by unfortunate factional disagreements in the profession in certain communities—very few, I am glad to say. I refer to the denial of the correctness of the diagnosis of smallpox by some physicians, thereby furnishing a centre for the intractable members of the community to rally around, and rendering the enforcement of the necessary regulations very much more difficult. Where the dissenting physician saw the case, or cases, in person, it was doubtless an honest difference of opinion, but usually he refused to visit the patient, while he continued to publicly express his opinion. With the lights before me I can see no sufficient justification for this attitude on the part of a medical man. In the matter of disease the physician occupies with the people a position of authority, and as a patriotic citizen, to say nothing of his professional obligation, the abuse of that high position, from whatever motive, in a way calculated to increase the misfortunes of his neighbors is, to express it in the mildest terms possible, extremely indiscreet. In every instance where the profession was united no trouble was experienced, the authorities, both county

and municipal, responding promptly to their suggestions.

In addition to directing the movements of the Inspector I have written a great many letters to Superintendents of Health, Mayors, County Commissioners, and others, and have prepared two circulars, the first in July, 1893, which was sent, with a letter to the editor, to the newspapers of the State for publication, and the second in March, 1899, which was printed in the form of a poster, a copy of which is attached, which was sent to the Superintendents of Health with a letter requesting them to post in conspicuous places.

On the whole, when we take into consideration the conditions already alluded to, and, in addition, the imperfections in our sanitary machinery, I think there is good ground for congratulating ourselves and the State that the various outbreaks have been generally so well managed and that so many of the people have been vaccinated. While there has been a great deal of opposition to vaccination it is gratifying to know that several enterprising communities, with officials of nerve, carried it out under compulsion, going so far in more than one instance as to commit the recalcitrant to jail, or to work upon the roads, until a more enlightened frame of mind was reached. This is fortunate, for the seeds having been widely distributed, there is reason to fear the recrudescence of the disease next winter, and probably in severer form.

The following is a tabulated statement of smallpox in the State from January 12th, 1898, to May 1st, 1899, when the last official reports were received:

SMALLPOX RECORD FROM JANUARY 12,
1898, TO MAY 1, 1899.

COUNTIES.	CASES.			DEATHS.		
	W.	C.	Total.	W.	C.	Total.
Alamance.....	20	2	22	1	.....	1
Anson.....	5	5	.....	.....	.....	.....
Beaufort.....	2	2	.....	.....	.....	.....
Bertie.....	12	12	.....	1	.....	1
Buncombe.....	11	11	.....	1	.....	1
Catawba.....	13	13	.....	.....	.....	.....
Chatham.....	1	18	19	.....	.....	.....
Chowan.....	.....	21	21	1	.....	1
Clay.....	10	.....	10	.....	.....	.....
Columbus.....	2	2	4	.....	.....	.....
Craven.....	.....	2	2	.....	.....	.....
Currituck.....	10	30	40	.....	.....	.....
Durham.....	.....	8	8	.....	.....	.....
Edgecombe.....	43	13	56	1	.....	1
Gates.....	4	30	34	.....	.....	.....
Guilford.....	3	.....	3	.....	.....	.....
Halifax.....	.....	9	9	.....	.....	.....
Hertford.....	1	2	3	.....	.....	.....
Iredell.....	16	57	73	.....	.....	.....
Johnston.....	.....	1	1	.....	.....	.....
Lenoir.....	1	16	17	.....	.....	.....
McDowell.....	14	.....	14	6	.....	6
Martin.....	.....	3	3	.....	.....	.....
Mecklenburg.....	1	7	8	3	.....	3
Moore.....	.....	6	6	.....	.....	.....
Nash.....	.....	14	14	.....	.....	.....
New Hanover.....	3	3	6	.....	.....	.....
Northampton.....	.....	9	9	.....	.....	.....
Pasquotank.....	14	35	49	1	.....	1
Perquimans.....	1	.....	1	.....	.....	.....
Rockingham.....	.....	1	1	.....	.....	.....
Rowan.....	2	23	25	.....	.....	.....
Tyrrell.....	4	.....	4	.....	.....	.....
Union.....	.....	8	8	.....	.....	.....
Wake.....	5	64	69	1	.....	1
Warren.....	3	1	4	.....	.....	.....
Wayne.....	3	24	27	1	.....	1
Wilson.....	1	2	3	.....	.....	.....
Total No. Cases,	162	554	616	8	9	17

Death rate, per cent.: White, 4.93; colored, 1.97; total, 2.76.

Number of counties, 38.

Review of Diseases for May, 1899.

(SEVENTY-SIX COUNTIES REPORTING).

Eighty-four counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of May the following diseases have been reported from the counties named:

MEASLES.—Ashe, 2; Craven, 12; Durham, a good many; Greene, 15; Halifax, 2; Harnett, a few; Hertford, 3; Nash, 6; New Hanover, 10; Perquimans, 60; Pitt; Union, epidemic; Watauga, 15; Wayne, 20—14 counties.

GERMAN MEASLES.—McDowell; Sampson.

WHOOPING-COUGH.—Ashe, 6; Beaufort, epidemic; Chowan, 4; Craven, 8; Currituck; New Hanover, 1; Robeson; Rockingham; Stanly; Union, epidemic; Wayne, 40—11 counties.

SCARLET FEVER.—Mecklenburg; Wayne.

TYPHOID FEVER.—Catawba, 1; Chowan, 3; Clay, 1; Columbus, 3; Craven, 3; Greene, 1; Harnett, a few; Haywood, 5; Jackson, 1; Jones, 2; Macon, 1; Martin, 2; Mecklenburg, 4; Mitchell, 4; New Hanover, 2; Northampton, 3; Pasquotank, 1; Perquimans; Rockingham; Rowan, 2; Stanly, 4; Surry, 4; Watauga, 2; Wayne, 1; Yancey, 4—25 counties.

MALARIAL FEVER.—Alamance; Columbus; Craven; Gates; Halifax; Orange; Pasquotank; Person; Robeson; Rowan, Sampson—11 counties.

MALARIAL FEVER, HEMORRHAGIC.—Craven, 1; Halifax, 2.

DIARRHEAL DISEASES.—Alamance, Beaufort, Bladen, Carteret, Caswell, Catawba, Cherokee, Columbus, Currituck, Forsyth, Franklin, Gaston, Gates, Granville, Greene, Halifax, Harnett, Hertford, Iredell, Lincoln, Macon, Martin, Mecklenburg, Moore, New Hanover, Northampton, Onslow, Orange, Perquimans, Person, Pitt, Robeson, Rowan,

Rutherford, Sampson, Stanly, Surry, Union, Vance, Wayne and Yadkin—41 counties.

MENINGITIS, CEREBRO-SPINAL.—Buncombe, 2; Beaufort, 2.

MUMPS.—Pitt, Sampson.

ROSEOLA.—Beaufort; Gaston; Jackson.

SMALLPOX.—Bertie, 4; Burke, 22; Catawba, 1; Chowan, 1; Currituck, 6; Gates, many cases; Hertford, 4 (varioid); McDowell, 1; Moore, 1; Nash, several; Northampton, 1; Rockingham, 14; Rowan, 1; Wake, 4; Wayne, 7—15 counties.

CHOLERA, IN CHICKENS.—Greene; Haywood.

CHOLERA, IN HOGS.—Greene.

DISTEMPER, IN HORSES.—Johnston; Yancey.

EPIDEMIC OF "KIDNEY TROUBLE."—Alamance, several deaths.

No diseases are reported from Alexander, Buncombe, Cleveland, Davidson, Davie, Edgecombe, Henderson, Madison, Pender, Polk, Randolph, Transylvania, Warren, Washington and Wilkes.

No reports have been received from Anson, Caldwell, Cumberland, Duplin, Guilford, Stokes and Wilson.

Summary of Mortuary Report for May, 1899.

(EIGHTEEN TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	77,778	57,425	135,203
Aggregate deaths...	101	100	201
Representing temporary annual death rate per 1,000	15.6	20.9	17.8
<i>Causes of Death.</i>			
Typhoid fever	2	1	3
Malarial fever.....	3	2	5
Whooping-cough...	2	0	2
Pneumonia.....	2	2	4
Consumption	9	16	25
Brain diseases.....	7	5	12
Heart diseases.....	2	3	5
Neurotic diseases...	0	2	2
Diarrhœal diseases	21	15	36
All other diseases..	48	49	97
Accident.....	3	5	8
Suicide.....	2	0	2
	101	100	201
Deaths under five years.....	38	33	71
Still-born.....	6	11	17

Mortuary Report for May, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.		Still-born
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.	
Asheville	W.	8,000	13,000	12.0	21.2	...	...	...	...	...	...	...	2	1	...	...	4	1	...	...	...	...	...
Dr. M. H. Fletcher.	C.	5,000		36.0		1	2	4	7
Charlotte	W.	17,153	26,153	13.3	15.1	1	...	...	...	...	...	...	2	1	...	...	7	9	...	...	...	13	11
Dr. F. O. Hawley.	C.	9,000		18.7		1	3	3	6	1	...	14	33	6
Durham	W.	4,000	6,000	12.0	20.0	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...	...	4	...
Dr. Z. T. Brooks.	C.	2,000		36.0		1	1	2	1	6	10	...
Greensboro	W.	6,000	10,000	12.0	13.2	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...	...	6	...
J. S. Michaux, C. Ck.	C.	4,000		15.0		1	1	1	2	5	11	...
Henderson	W.	2,250	4,250	26.7	22.6	...	...	...	...	...	...	...	1	1	...	...	3	...	...	...	...	5	...
Dr. Goode Cheatham.	C.	2,000		18.0		2	1	3	8	...
Hillsboro	W.	400	700	30.0	17.1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...
Dr. C. D. Jones.	C.	300		0.0		0	1	...
Marion	W.	800	1,200	45.0	30.0	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	3	...
Dr. B. A. Cheek.	C.	400		0.0		0	3	...
Newbern	W.	3,500	9,500	10.2	13.8	...	...	...	...	...	...	...	2	...	...	...	1	...	...	...	...	3	...
H. J. Lovick, C. Ck.	C.	6,000		16.0		3	1	4	8	11	...
Oxford	W.	1,200	2,300	10.0	26.1	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...
Dr. S. A. Cannaday.	C.	1,100		43.6		2	4	5	...
Raleigh	W.	8,500	16,000	12.7	12.7	...	...	...	...	...	...	...	1	1	...	...	...	7	...	...	...	9	...
T. P. Sale, Clerk B. H.	C.	7,500		12.8		1	7	8	17	...
Rocky Mount	W.	1,600	2,600	15.0	13.8	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...	2	...
Dr. G. L. Wimberley.	C.	1,000		12.0		1
Salem	W.	4,100	4,550	17.6	21.1	...	...	...	...	...	...	...	1	...	...	...	...	5	...	...	...	6	...
S. C. Butner, Mayor.	C.	450		53.3		2	8	...
Salisbury	W.	4,000	6,000	9.0	14.0	...	...	...	...	...	...	...	...	...	1	...	...	2	...	...	...	3	...
Dr. W. W. McKenzie.	C.	2,000		24.0		1	1	2	4	7	...
Scotland Neck	W.	775	1,200	15.5	10.0	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...
J. A. Perry, Mayor.	C.	425		0.0		0	1	...
Tarboro	W.	1,300	2,500	46.1	0.0	...	...	...	...	2	...	1	...	...	1	...	...	1	...	...	...	5	...
Dr. L. L. Staton.	C.	1,200		0.0		0	5	...
Warrenton	W.	970	1,735	12.4	6.8	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	...
Dr. P. J. Macon.	C.	765		0.0		0	1	...
Washington	W.	3,500	6,000	6.8	10.0	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	2	...
Dr. P. A. Nicholson.	C.	2,500		14.4		2	1	3	5	...
Weldon	W.	700	1,450	17.1	16.5	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
J. T. Gooch, Mayor.	C.	750		16.0		1
Wilmington	W.	11,000	26,500	20.7	20.4	1	...	...	...	...	...	...	...	...	...	...	...	15	3	...	...	19	...
Dr. W. D. McMillan.	C.	15,500		20.1		7	1	16	2	...	26	45	...
Wilson	W.	2,500	4,800	28.8	35.0	...	...	1	...	...	...	...	1	2	...	...	...	...	...	...	...	6	...
Dr. Albert Anderson.	C.	2,300		41.7		1	1	1	2	4	1	...	8	14	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition, nine non-residents died of consumption, one of pneumonia, and one of cancer of the lung.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Jones	Dr. S. E. Koonce.
Alexander	Dr. T. F. Stevenson.	Lenoir .....	.....
Alleghany .....	.....	Lincoln	Dr. L. A. Crowell.
Anson	Dr. E. S. Ashe.	McDowell	Dr. B. A. Cheek.
Ashe	Dr. Manley Blevins.	Macon	Dr. F. L. Siler.
Beaufort	Dr. P. A. Nicholson.	Madison	Dr. Jas. K. Hardwicke.
Bertie	Dr. H. V. Dunstan.	Martin	Dr. W. H. Harrell.
Bladen	Dr. Newton Robinson.	Mecklenburg	Dr. C. M. Strong.
Brunswick .....	.....	Mitchell	Dr. C. E. Smith.
.....	Dr. E. R. Morris.	Montgomery .....	.....
.....	Dr. J. L. Laxton.	Moore	Dr. Gilbert McLeod.
Caldwell .....	.....	Nash	Dr. J. P. Battle.
Caldwell	Dr. A. F. Houck.	New Hanover	Dr. W. D. McMillan.
Camden	No Board of Health.	Northampton	Dr. H. W. Lewis.
Carte	Dr. F. M. Clark.	Onslow	Dr. E. L. Cox.
Cas	Dr. S. A. Malloy.	Orange	Dr. C. D. Jones.
Cat	Dr. Geo. H. West.	Pamlico	No Board of Health.
Cha	Dr. H. T. Chapin.	Pasquotank	Dr. H. T. Aydlett.
Che	Dr. S. C. Heighway.	Pender	Dr. George F. Lucas.
Cho	Dr. T. J. Hoskins.	Perquimans	Dr. C. C. Winslow.
Clay	Dr. W. E. Sanderson.	Person	Dr. J. A. Wise.
Cleveland	Dr. B. H. Palmer.	Pitt	Dr. C. O'H. Laughing- house.
Columbus	Dr. J. F. Harrell.	Polk	Dr. C. J. Kenworthy.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare .....	.....	Rockingham	Dr. Sam Ellington.
Dauids	Dr. John Thames.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. J. W. Blount.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Stanly	Dr. J. W. Littleton.
Edgecombe	Dr. L. L. Staton.	Stokes	Dr. W. L. McCanless.
Forsyth	Dr. John Bynum.	Surry	Dr. John R. Woltz.
Franklin	Dr. E. S. Foster.	Swain	Dr. A. M. Bennett.
Gaston	Dr. J. H. Jenkins.	Transylvania	Dr. M. M. King.
Gates .....	.....	Tyrrell	No Board of Health.
Graham	No Board of Health.	Union	Dr. J. E. Ashcraft.
Granville	Dr. G. A. Coggeshall.	Vance	Drs. W. T. & G. Cheat- ham.
Greene	Dr. Joseph E. Grimsley.	Wake	Dr. P. E. Hines.
Guilford	Dr. B. W. Best.	Warren	Dr. T. B. Williams.
Halifax	Dr. I. E. Green.	Washington	Dr. W. H. Ward.
Harnett	Dr. O. L. Denning.	Watauga	Dr. W. B. Council.
Haywood	Dr. F. M. Davis.	Wayne	Dr. Jas. H. Powell.
Henderson	Dr. J. G. Waldrop.	Wilkes	Dr. J. W. White.
Hertford	Dr. John W. Tayloe.	Wilson	Dr. C. B. Walton.
Hyde	No Board of Health.	Yadkin	Dr. M. A. Royall.
Iredell	Dr. Henry F. Long.	Yancey	Dr. J. M. Fairchild.
Jackson	Dr. J. H. Wolff.		
Johnston	Dr. L. D. Wharton.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough Typhoid Fever

Measles Typhus Fever

Diphtheria Yellow Fever.....

Scarlet Fever Cholera

Pernicious Malarial Fever Smallpox.....

Hemorrhagic Malarial Fever Cerebro-spinal Meningitis.....

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks:

M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
HENRY W. LEWIS, M. D., Jackson.
HENRY H. DODSON, M. D., Milton.

C. J. O'HAGAN, M. D., Greenville.
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ALBERT ANDERSON, M. D., Wilson.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

JULY, 1899.

No. 4.

Texas Cattle Fever and Malaria.

The appearance at several points in the State during the past month of Texas cattle fever makes the reprinting of the appended paper by Dr. Theobald Smith, the discoverer of its true pathology, and the highest authority on the subject, appropriate at this time. But the fact that the season of the year when malaria is most abundant—August and September—is just beginning, makes it still more opportune. For some time we have regarded Manson's theory of the transmission of malaria by mosquitoes as the most satisfactory yet enunciated, and in view of the positive demonstration of the transmission of splenic fever in cattle—a disease very closely allied to malarial disease in the human being—as decidedly the most prob-

able. To our mind it meets the conditions more fully than any other. As some of our readers may perhaps remember, we published several years ago a pamphlet on "Drinking Water in its Relation to Malarial Diseases," the said pamphlet being made up chiefly of the evidence we had collected. This evidence satisfied us that the malarial poison was introduced into the human system through the medium of drinking water from surface wells, however else it might be transmitted. But there was one particular statement that we could not explain. That was the fact that in many instances the use of water from a pump driven into the soil in the immediate vicinity of the open well, and but little, if any, deeper, brought about a marked decrease in malarial attacks. On the mosquito theory it seems simple enough.

The female mosquito, which is the one that stings, and in whose body the *plasmodium malarix*, which is now generally accepted as the germ of the disease is found, lays her eggs on the surface of still water, immediately thereafter dies, sinks to the bottom, and in time disintegrates, thereby freeing the germs, which are then swallowed by persons drinking the water. If this is true, as we think more than probable, tightly closing the top of the original well and using a pump to draw the water would have had the same effect as driving a pump in a new place. We would thank some of our readers who are now using open wells and are afflicted with malarial troubles to try this plan of effectually sealing their wells against mosquitoes and drawing the water by means of a pump. Another good reason for doing this is the following from a recent letter from Dr. W. T. Pate, one of the bacteriologists of the Board, on another aspect of the water question: "I do not think we can condemn too severely the open well and the bucket method of hoisting drinking water. Quantities of organic material and numbers of bacteria dangerous to health are introduced from the top of these wells. I have examined the water from numbers of such supplies in this section, and invariably find large numbers of putrefactive bacteria." This suggestion means, of course, the doom of the "Old Oaken Bucket that hung in the well," and that stands out so prominently in the scenes of our childhood so dear to our hearts, etc., and it is with a sigh for the

good old days that we consign it to its place among the memories of the past. It would entail very little expense, would probably save much sickness as well as money, and would at the same time, perhaps, furnish very valuable information.

The practical lesson to be drawn from the article below will we found in the last paragraph, and that is to remove, as far as possible, all mosquito-breeding conditions. In the first paragraph the impression is made that the theory of the transmission of malaria by mosquitoes is Koch's, whereas, as we understand it, it originated with Manson, an English physician, as Dr. Smith incidentally states in the body of his paper:

THE ETIOLOGY OF TEXAS CATTLE FEVER,
WITH SPECIAL REFERENCE TO RECENT
HYPOTHESES CONCERNING THE TRANSMISSION OF MALARIA.*

By Theobald Smith, M. D.,

George Fabyan Professor of Comparative Pathology in the Medical Department of Harvard University; Pathologist to the State Board of Health of Massachusetts.

The studies upon human and animal diseases carried on recently by Koch in the heart of Africa, and his enunciation of an hypothesis concerning the transmission of malaria by stinging insects, more particularly by mosquitoes, have drawn attention to the etiology of Texas cattle fever, upon which his hypothesis was based. Our studies on Texas fever have been so fully recorded†

*Read before the New York Academy of Medicine, April 6, 1899.

†Theobald Smith and F. L. Kilborne, *Investigations into the Nature, Causation, and Prevention of Southern Cattle Fever*, Washington, 1893, pp. 304. For an abridged reprint, see the *Eighth and Ninth Annual Reports of the Bureau of Animal Industry* (1891, 1892). A brief summary by the writer may be found in *Centralblatt f. Bacteriologie*, vol. xiii, 1893, p. 511, and some additional data in *Transactions of the Association of American Physicians* for 1893.

that the only excuse I have in accepting the invitation of your president to bring out once again the salient facts in the ætiology of this most interesting disease is the moral support which it may tend to give to the inoculation hypothesis of malaria, in which I have been a firm believer for several years, until it can either be disproved or satisfactorily demonstrated to be true.

It was known for a good many years by farmers and agriculturists of the United States that healthy cattle driven north beyond a certain line during the warm season of the year would infect pastures with a virus highly fatal to the native cattle grazing on them.

When in 1868 the early slow process of driving cattle afoot was abandoned, and the steamboat and the railroad were substituted, this peculiar disease was disseminated over a wide territory, even reaching this city. It was also known that cattle driven south from the northern side of this line contracted the same disease. The investigations of Dr. D. E. Salmon during the years 1880-'84 defined more accurately this line, and showed the existence of a large permanently infected territory, including most of the Southern States. At present the national government issues annually rules and regulations governing the movement of the cattle from this enzootic territory, so as to protect the live-stock interests of the North. But even now the rules are sometimes broken, and in 1897 the disease appeared in a number of cows about Boston. The virus had been dropped in the Albany stock-yards, and from there taken to those near Boston. The line, as drawn at present by the Department of Agriculture, extends across the country between the twenty-ninth and forty-second parallels of latitude.

The importance of knowing something of the mysterious agencies of this disease led the government and some of the States to

induce a number of persons to investigate it. Beginning with 1868, various reports have been issued, the most satisfactory of these being one by R. C. Stiles on investigations made in this city in 1868 for the then Metropolitan Board of Health. Its only disfigurement is the part added by Ernst Hallier, of Jena, on the ætiology, which serves well to illustrate the vagaries of pseudo-science. Of the other reports dealing with the ætiology, the less is said the better. They can be resurrected by any one so desiring, by consulting the references in our full report.

In 1888 I was first introduced to this subject by examining portions of the organs of animals which had succumbed to it in Maryland and Virginia. These were brought to the laboratory at Washington on ice. At this time the only report which pretended to make any detailed statements concerning the lesions produced by Texas fever was the one by R. C. Stiles. It was therefore necessary to study the subject from the bottom to get some data on which to found the ætiological work. From the pieces examined in the summer of 1888 I became convinced that a corpuscle-destroying parasite was at work. Laveran's discovery and subsequent researches by Italian writers, more particularly Golgi, had paved the way for this assumption. The material was not in any satisfactory condition for studies of the blood, and this part of the work was postponed until the blood of a living animal could be examined. In the meantime appeared Babès's work on the hæmoglobinuria of cattle in Roumania.* Babès found in this disease a coccus within the red corpuscles, which he cultivated, though with difficulty, and passed through several rabbits. Subsequent events showed that he saw the true parasite, but went astray in assuming that it

* *Archiv f. pathol. Anatomie*, vol. cxv, 1889, p. 82.

was a bacterium, and in cultivating some other organism, possibly that of rabbit septicæmia. He regarded the drinking troughs as disseminators of the disease. Since his first communication Babès has gradually converted his diplococcus into a protozoan parasite, and has reported the presence of ticks upon Roumanian cattle. Through the efforts of Dr. Salmon, chief of the Bureau of Animal Industry, my wish to have diseased animals within easy reach of the laboratory was carried out in the summer of 1889, and the very first cases revealed the intraglobular parasite.* It was only necessary now to interpret certain peculiar appearances of the blood-corpuscles, due to the extreme anæmia,† which might have been taken for stages in the life history of the parasite, and we had a ready means of diagnosis. The microscope and Thoma's blood-corpuscle counter, aided by the clinical thermometer, were thereafter the chief means of recognizing the disease. The work accomplished in the summer of 1889 furnished us with certain data concerning the pathology of Texas fever and the micro-organism to which I shall very briefly allude before taking up the mechanism of its transmission.

The acute type of the disease begins with a high fever, reaching not infrequently 107° and 108° F. The animal may succumb after three or four days of fever or after a week. In rare cases recovery takes place. During the fever only several per cent. of the red corpuscles in the peripheral circulation contain parasites. There is, however, very rapid destruction going on at the average rate of half a million of red corpuscles per cubic millimetre a day, leading in many cases to a fall from six to 1.5 million in a week. The lesions vary from case to case, depending on

the duration of the disease. When the animal succumbs in the first week, the spleen is found enormously engorged, the pulp partly disintegrated. The liver is greatly enlarged, of a yellowish or saffron hue, and the bile is of the consistence of chewed grass. In sections of the fresh organ a beautiful net-work of bile canaliculi injected with a semi-solid bile may be seen. In later stages this has disappeared, and the central portion of the lobule is now in a state of coagulation necrosis. The kidneys are enlarged, œdematous, suffused with the coloring matter of blood, and frequently the fatty tissue around them is in a state of hæmorrhagic œdema. The bladder is full of wine-red or even blackish urine. Red corpuscles are not present in it. Hæmorrhagic spots are quite common in the heart muscle, especially under the endocardium. If these various organs are examined in smear preparations, a very large number of infected corpuscles may be found in the spleen, liver, kidney, heart muscle, and plexuses of the brain. In the kidney they are largely free and resemble cocci of varying dimensions. In sections the infected corpuscles are found in the form of capillary plugs, traceable in thick sections for some distance. The parasite in the acute disease is thus largely restricted to the capillaries of the internal organs. The heart muscle has generally furnished me with the most abundant and characteristic parasites.

Starting from this acute type we may encounter all gradations down to the mildest manifestations, recognizable only by the study of the red corpuscles and the blood count. Superficial examination may even miss the rare parasites in the peripheral circulation, but in all cases the marked fall in the number of red corpuscles and, in default of an enumeration, the characteristic basophilic substance in the red cells of oligocythæmia, staining diffusely or in

* *Medical News*, December 4, 1889.

† *Transactions of the Association of American Physicians* for 1891.

granules with Löffler's methylene blue, may furnish a satisfactory diagnosis. Any detailed description of the morphology of the parasite would be out of place in this paper, the more so as nothing new has been added to our knowledge since 1893. Certain statements made by Koch* concerning the earlier stages are easily harmonized with existing information. It is sufficient to state that the reproductive stage of the micro-organism has not been made out. There are several points, however, to which I should like to allude briefly. The earliest stage of intraglobular life I believe to be a motile, rodlike form of very small dimensions, whose movements within the corpuscle from one side to the other can be followed in the fresh blood.

It is not brought out by staining. In the further development of the organism it is highly probable that there are two different modes of reproduction, similar to those first suggested by R. Pfeiffer for *Coccidium ovi forme*, and recently made out by the combined labors of MacCallum, Simond, Siedlecki, Léger, and others for other sporozoa—namely, a reproductive process adapted for rapid multiplication within the host and one for an environment different from that of the host. This theory harmonizes many puzzling phenomena, among them the very rapid multiplication of the parasite in the susceptible animals leading to acute disease and the slow, but continuous, reproduction in the immune. None of these many animals other than cattle inoculated with infectious blood were found susceptible. The work was thereby made much more laborious and expensive.

That ticks carry the disease was suspected for many years. In 1868 Mr. John Gamgee, imported from England to study this plague for the government, wrote: "The tick theory has gained quite a renown during the past

summer, but a little thought should have satisfied any one of the absurdity of the idea." When the disease was first produced near Washington by the importation of healthy North Carolina cattle, F. L. Kilborne, then superintendent of the government farm where the field experiments were conducted and in charge of the experimental animals, suggested two experiments—the infection of fields with ticks alone and the removal of ticks from Southern cattle to be penned with the natives. These were carried out and repeated during three successive seasons. They showed quite satisfactorily that the popular belief that the tick is necessary to the infection of pastures was well founded. They naturally led at first to the assumption that pastures are infected by ticks drawing the parasite with the blood, and that the native animals are infected by grazing over the infected soil, somewhat analogous to Manson's theory of the relation of mosquitoes to malaria. In order that we may understand the reasons that led to a wholly different result, a brief review of the life history of the tick is necessary. While studying this ectoparasite in 1889 I noticed that the female would lay her eggs in captivity. This fact enabled us to fill in the gaps in the life history not easily observed in the field, and Cooper Curtice,* then helminthologist of the Department of Agriculture, studied more in detail the development of the tick by placing the young upon a heifer and watching their growth. The young six-legged arachnid, after emerging from the egg, fails to develop until placed on its special host. I have kept individuals from December to May in culture dishes without noticing any change beyond a gradual destruction due to the artificial environment. When placed on cattle, their growth begins at once, and in about a

*Reiseberichte, Berlin, Springer, 1898.

*Journal of Comparative Medicine and Veterinary Archives, 1891 and 1892.

week the first moult takes place, when the animal appears provided with another pair of legs. In another week a second moult introduces the sexually mature period. Fertilization then takes place, and the female begins to swell up with the growth of eggs and the large amount of imbibed blood. After about three weeks of parasitic existence the ripe female falls to the ground, deposits one to two thousands eggs, and dies. The period of development of the embryos on the soil varies within very wide limits, depending entirely on the temperature. Fifteen days is the shortest period I have observed. After emerging from the egg the young at once seek to attach themselves to their host and begin the life cycle anew. The age of one generation, embracing the period of incubation of the ovum and the parasitic life, averages from forty to seventy days. It will be seen from this sketch that the cattle tick is exclusively parasitic in its habits, and that it does not pass from one host to another, but completes its life upon one animal.

In the second summer season, after the pathology and parasitology of the disease and the life history of the tick had been fairly apprehended, the sudden simultaneous appearance of high fever in the animals exposed in infected fields, and the new brood of ticks upon them, forced upon me like a flash the conviction that we were here in the presence of a wholly new fact in the domain of ætiology. Everything pointed to the young tick as introducing the disease by inoculation, in spite of the newness and apparent awkwardness, as it were, of this hypothesis. Especially strong testimony in its favor was the long period of incubation. The susceptible animals penned with Southern animals or in fields infected with ticks remained absolutely well for five weeks or longer after the earliest date of field infection; then with a bound the temperature

rose, and in a week the majority were dead. I ransacked the older records to obtain more evidence upon the period of incubation, but the few instances recorded confirmed our field observations. This period, it should be borne in mind, dates from the infection of the pasture and not from the date of exposure of cattle on it. The tick embryos continue their development whether cattle are present or not. After the young brood has appeared, a week or even less time suffices for the outbreak of disease. This hypothesis, that the progeny of the infected tick produces the disease, left me in doubt for a time concerning the ætiological relation of the blood parasite. Could not a poison be introduced by the young tick into the blood of cattle which destroyed certain inhibitory mechanisms, and thereby favored the multiplication of an ordinary blood parasite? This doubt was nurtured by the occasional discovery of very minute refringent bodies of varying outline within red corpuscles of susceptible but healthy native cattle. Two lines of experiments were carried out to meet these new developments: First, the rearing of young ticks artificially in the laboratory and the infection of cattle with them; second, the transmission of the disease from one animal to another by the injection of infected blood without the intermediation of the tick. Both were successful. The first demonstrated the infectious character of the young tick, the second that the blood parasite, and not any poison introduced by the tick, is the real cause of the lesions. The disease produced directly with young ticks appeared to be somewhat less fatal than the natural exposure. This may be due to certain interferences with nature's processes, such as the removal of female ticks before they are quite ready to drop, and the artificial incubation of the ova.

This disease may now be produced by any one, in midsummer, by sending to the per-

manently infected territory for ripe female ticks and incubating the eggs laid in confinement. As the disease does not spread from an inclosure, and as the ectoparasite is destroyed by frost, any danger to live stock is out of the question, if a little care is exercised. Any spot of ground once infected may remain so during the warm season, owing to the persistent vitality of the young tick until frost comes. The disease may in this way be exploited, if sufficient means are at hand, in the interest of a broader ætiology and pathology than that fostered for the promotion of agriculture by our national government. I would warn any one, however, against the danger of drawing conclusions from the study of too few cases. The wide range of pathological changes in the blood and tissues and the variable degree of blood infection should always be borne clearly in mind. The life of the blood parasite in the tick has not yet been elucidated. It seems most in harmony with biological science to assume that the ova become infected, and that in the young tick certain organs analogous to salivary glands, connected with the operation of drawing blood, discharge the parasite into the blood of the host.

Since the ætiology of the American disease has been cleared up the same malady has been found to exist in Finland, Roumania, Italy, Australia, South Africa, and German East Africa. It will probably be found in other similarly situated countries whenever a migration of cattle shall have taken place which will tend to mingle immune and susceptible animals. It is strange that so little attention has hitherto been given by others to the transmission of the disease. Koch showed his unusual sagacity in seizing upon this one feature of the ætiology and investigating it to satisfy himself. Undoubtedly the fairy-story element about the transmission of the disease by the

progeny of the infected ectoparasite, as Koch himself expresses it, led the various observers to take the position of John Gamgee, that "a little thought should have satisfied any one of the absurdity of the idea."

There are several phases of this remarkable disease which have a very important bearing upon ætiological studies of malaria; to these I wish to allude briefly before concluding. The persistence of the parasite of Texas fever in the blood after recovery, and for years after the immune Southern animal has left the enzootic territory,* shows that a kind of symbiosis has been established between host and parasite. This symbiosis begins early in the life of the Southern cattle, with perhaps several mild attacks of fever, and thereafter, though they remain well, they are nevertheless the carriers of a fatal infection for the non-immune Northern cattle. Their blood produces the acute type of Texas fever when injected under the skin.† This fact I regard as next in importance to the demonstration of the transmission of infection by the offspring of ectoparasites, because it proves that the blood parasite of Texas fever may exist for some time independent of the tick. Whether, under such conditions, in the course of time it may lose the power of existing in the body of the cattle tick, and thereby become non-transmissible excepting by direct inoculation, is quite within the domain of probability.‡ Another important fact determined by these investigations is the acquisition of immunity toward protozoan diseases. This was so thoroughly demonstrated that I need not dwell on it here. A high degree of immunity is

**Bulletin No. 3, Bureau of Animal Industry, Washington, 1893, pp. 67-73.*

†The persistence of the blood parasite in highly immune cattle and the infectious character of their blood must be rather discouraging to those who look forward to a malarial antitoxine.

‡For an analogous problem in the life of *Anguillula intestinalis*, see Leichtenstern, *Centralblatt f. Bacteriologie*, vol. xxv, 1899, p. 226.

not so easily acquired, however, as Koch's recent statements would lead us to suppose. I am inclined to believe, after a careful study of his experiment, that he was dealing with animals already endowed with considerable resistance. We know from the various researches on bacterial immunity that a partly immune animal becomes highly re-istant after but little treatment. A very interesting clinical confirmation of the capacity of animals toward the acquisition of immunity is provided for us by the course of the disease itself. When animals are infected in the early months of summer the disease assumes the acute form, with high continued fever and rapid destruction of corpuscles. If the animal passes the first week alive it may recover. The temperature then falls and a rapid reproduction of red corpuscles takes place. Then there may be one or two very brief periods of high temperature with evident loss of red corpuscles and the transient appearance of parasites in the blood. Three to five weeks after the first attack there is ushered in a modified or mild type of the disease, not suggested by any outward signs of disease, but recognizable by a higher evening temperature, by persistent anæmia, and by the appearance in the peripheral circulation of large numbers of infected corpuscles. The blood parasite in this mild type or relapse appears in a form not encountered in the first acute attack. It is very small, coccuslike, and situated on the periphery of the red corpuscle. These bodies, associated with very rare forms of the large pyriform bodies, may persist for four or five weeks, or until the colder weather comes. Then their disappearance ushers in the period of normal temperature and rapid rise in the number of red corpuscles. This type of fever is common in the fall, the acute stage preceding it being short and frequently not noticed. I have interpreted the peculiar features of this

mild type or relapse as a resultant of partial, acquired immunity, in virtue of which the development of the blood parasite is greatly retarded, and perhaps modified, and the infected corpuscle may circulate a longer time before it becomes caught as a foreign body in the capillaries of the internal organs.

These two facts, the persistence of the blood parasite and the acquisition of immunity, I have used in building up a working hypothesis in studying the dissemination of tertian malaria in Massachusetts under the direction of the State Board of Health since 1896. This hypothesis assumes first of all the introduction of the malarial parasite into a region in the body of human beings. If the conditions are favorable—*i. e.*, if the infected individuals live near standing water to which mosquitoes may speedily repair and lay their eggs, and if individuals are readily accessible to the young brood for infection—the disease is likely to take root and become endemic. The blood parasite is protected over winter in the body of the infected human being. The larger the number of these, the more difficult the eradication of the disease will become unless the insects are suppressed. The harmlessness of mosquitoes in regions still free from malaria is a well established fact. Whether they can perpetuate their own infectiousness, either by transmission of the sporozoa from brood to brood or by using some susceptible animal as host, the future must settle with the other factors of the problem. Experiments with ticks point to a loss of infectious power when they are restricted to Northern animals, but no absolute proof of this has yet been published. The appearance of malaria during the work of excavation I attribute first to the introduction of the blood parasite into the bodies of chronically infected workmen, and secondly to the accessibility of these to the insects, owing to the favorable conditions usually created

during such work for breeding and for stinging the unprotected workmen. This hypothesis embraces all those conditions and phenomena regarded as necessary by older theories, but it interprets them differently. It is based wholly on analogy with Texas fever.

The assumption that attacks of malarial disease beget immunity is not at all weakened by the occurrence of relapses. It should be remembered that the quinine treatment interferes with the immunizing process. In the second place, relapses may simply mean a temporary interference with the protective mechanism, a congestion or temporary stagnation of the blood somewhere which enables the parasites to get at the red corpuscles in defiance, perhaps, of the leucocytes for the time being. It is along such lines of reasoning that we can explain the attachment of the South to the hydric theory of malaria. The bad ground water produces digestive derangements in individuals already infected, and an attack of malaria is called forth. That the human beings of warm climates may not harbor malarial parasites as universally as their cattle do the Texas fever organism remains to be seen.*

The clinical expression of acquired immunity does not seem to have been studied, but it deserves attention and may lead to valuable results. Certainly the analogous conditions in the cattle malaria cited above should stimulate such studies. In the examination of blood films from cases of tertian malaria occurring in a town which has been infected with it for a number of years, it has seemed to me as if in the repeated attacks of permanent infections the parasites were so scarce in the peripheral circulation that

they could not be found, although the physician who has had much experience feels positive of the character of the disease. Here we are confronted by the probability that the parasites, frequently so abundant in the peripheral circulation, are gradually confined by the growth of immunity to some restricted territory representing the *locus minoris resistentiæ* during derangements of health.

The recent investigations of Ross, confirmed and materially extended by Koch and his colleagues,* showing that in the *Proteosoma* infection of certain birds the blood parasite completes its cycle of development in one and the same insect by reappearing finally in the salivary glands, so that the insect becomes infectious a certain number of days after drawing infected blood, introduces a most interesting modification of the course pursued by the blood parasite in Texas fever. In the insect the absorption and dispensing of the infection is made possible by the powers of locomotion. In the obligatory parasitism of the tick the only mode of transmission possible is through the following generation. Evidently the former is the earlier process, the latter the modification which became established during the evolution of obligatory parasitism in the cattle tick. If the life cycle of the malaria parasite should be found the same as that of the *Proteosoma* of birds, the hypothesis of the transmission of the blood parasite to the immediate progeny of the infected mosquitoes need not be abandoned unless demonstrated to be false. In my field observations the peculiar distribution of cases of tertian fever in a newly infected territory seemed to point to the scattering of an infected brood rather than to the direct transmission from one individual to another. Both modes of dissemination may eventually be found in use.

* In a recent article (*Yearbook of the Department of Agriculture*, 1898, p. 456) Norgaard cites facts which show that Texas fever in a fatal form may be developed in apparently immune cattle by sudden extreme changes of temperature and by treating them with oil to remove the ticks.

* *Deutsche medicinische Wochenschrift*, 1899, February 2.

In presenting these hypotheses I must beg your indulgence, for, setting aside certain very important exceptions, the making of hypotheses is usually a less arduous task than the process of demonstrating their truth. However, I am strongly convinced that the time has come for public health authorities to take some definite stand on this matter of the spreading of tertian malaria in our own climate. The eradication of this and severer forms from the tropical colonial possessions of northern nations may be destined to remain a pious wish, and the exploiting of the natives and their induction into the advantages of our social and political organization may have to be left, as heretofore, to a few hardy pioneers, or to "immunes." At any rate, this is the only comfort we can get from nature herself just at present. In our own climate, however, it is not too late to stay the diffusion of malaria, and vigorous efforts to that end should be made, both by popular instruction and with the help of sanitary engineering. Much of the evil which manifests itself in the increasing prevalence of the mosquito is due to the carelessness and indifference of private persons, corporations, and even public authorities, who create and perpetuate the conditions which favor the silting up and the partial drying up of our streams and smaller water-courses and the stagnation of surface water. The inoculation theory of malaria is a safe one with which to begin the warfare against the disease, as it has the support of analogy, of partial demonstration, and of almost all the older theories.—*New York Medical Journal*.

Malaria and Mosquitoes.

Major Ross, I. M. S., the recently appointed lecturer in the School of Tropical Diseases, delivered an interesting illustrated lecture on the "Relations of the Malarial Parasite to the Mosquito," in the Physi-

ological Theatre of University College, Liverpool. The *Lancet* of May 27th gives a brief report of this lecture. Major Ross says that malaria is not so dramatic a disease as cholera. It does not kill so quickly, but it kills far more people. In India the deaths due to malaria are estimated at 5,000,000 a year. It is also a politically important disease, because it checks the progress of civilization in the richest districts of the world, and kills more of the English soldiers than are killed by the enemy. Malaria is certainly due to a parasite in the blood. Of this Major Ross is absolutely certain, having studied the subject for ten years in the tropics. The lecturer explained how the parasite gradually develops, destroying the corpuscles of the blood, leaving them mere shells. When fully developed, it scatters, and attacks other corpuscles, destroying and poisoning them likewise. Even if not numerous enough to cause fever on account of being bred in comparatively small numbers, they cause an indifferent condition of health. The treatment is quinine, but this does not always help. What we require to know is how malarial fever is produced. To do this we must find the parasite in external nature, and this problem has been solved by Dr. Patrick Manson. Besides the forms of malarial parasites described, other forms are found. Dr. Manson described how, in watching a drop of blood drawn from a malarial patient, there was seen in eleven minutes the remarkable effect of snake-like forms wriggling away and disappearing. He came to the conclusion that the life history of the malarial parasite, when it leaves the human being, is carried on in the mosquito, and therefore that malarial fever is propagated by the mosquito. Major Ross described how in the tropics he followed out Dr. Manson's theory beyond the point where the latter left it. The mosquito, which is not an ephemeral insect, but one which will

live for months, under favorable conditions, he found to be furnished, in certain species, with an internal process which develops the parasite in its present poison and lodges it in the poison gland opening into the creature's proboscis. The mosquito, in puncturing the skin, thus inoculates the human being with the malarial poison.—*N. C. Medical Journal*.

Review of Diseases for June, 1899.

(SEVENTY-EIGHT COUNTIES REPORTING)

Eighty-seven counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of June the following diseases have been reported from the counties named:

MEASLES.—Ashe, 10; Craven, 4; Durham; Hertford, 4; Nash, 2; Pitt, in all parts; Watauga, 20—7 counties.

SCARLET FEVER.—Wake, 1.

WHOOPING-COUGH.—Ashe, 12; Beaufort, epidemic; Caldwell; Chowan; Columbus, many cases; Craven, 21; Cumberland, 4; Mecklenburg; Perquimans, 5; Pitt, in all parts; Rockingham; Stanly; Union, 12; Wayne, 10—14 counties.

DIPHTHERIA.—Mecklenburg, 1.

TYPHOID FEVER.—Alamance, 4; Alexander, 1; Beaufort, 4; Burke, 2; Cabarrus, 8; Caldwell, 10; Chatham, 1; Cherokee, 1; Chowan, 4; Columbus, 2; Craven, 6; Davidson, 6; Forsyth, in all parts; Franklin; Gaston; Greene, 3; Guilford, 3; Harnett, a few; Haywood; Hertford, 3; Iredell, in all

parts; Jones, 6; McDowell, 10; Mecklenburg; Mitchell, 6; Moore, 2; Nash, 6; New Hanover, 6; Northampton, 8; Onslow, 2; Pasquotank, 1; Pender, 1; Perquimans, 6; Pitt; Polk, 2; Randolph, 2; Richmond; Robeson; Rockingham; Rowan, 16; Rutherford, a few; Stanly; Stokes, 3; Surry, 8; Transylvania, 3; Union, 3; Wake, 4; Warren, a few; Watauga, 2; Wayne, 6; Yadkin, 3; Yancey, 2—52 counties.

MALARIAL FEVER.—Alamance; Cabarrus; Carteret; Caswell; Catawba, 6; Chatham; Chowan; Columbus; Craven; Davidson; Durham; Guilford; Halifax; Moore; New Hanover; Northampton; Orange, a few; Perquimans, in all parts; Person; Pitt; Richmond; Robeson, in all parts; Sampson; Surry; Wayne—25 counties.

MALARIAL FEVER, PERNICIOUS.—Bertie, 1; New Hanover, 1; Pitt; Rowan, 1; Surry, 1.

DIARRHOEAL DISEASES.—Alamance, Bertie, Cabarrus, Carteret, Catawba, Chowan, Currituck, Gaston, Greene, Guilford, Halifax, Harnett, Haywood, Iredell, Jackson, McDowell, Orange, Randolph, Richmond, Rockingham, Union, Vance, Wilkes and Yancey—24 counties.

MUMPS.—Northampton; Pitt, in all parts.

RUBELLA.—Richmond.

SMALL-POX.—Bertie, 1; Burke, 6; Caldwell, 13; Caswell, 6; Currituck, 4; Halifax, 2; Hertford, 8; Iredell, 1; McDowell, 1; Mecklenburg, 1; Nash, 5; Person, 1; Randolph, 1; Rockingham, 4; Rowan, 1; Wake, 4—16 counties.

CHOLERA, IN CHICKENS.—Greene and Yancey.

CHOLERA, IN HOGS.—Greene and Washington.

DISTEMPER, IN HORSES.—Jackson.

STAGGERS, IN HORSES.—Bladen.

No diseases are reported from Bladen, Cleveland, Davie, Edgecombe, Granville, Johnston, Lincoln, Madison and Washington.

No reports have been received from Anson, Duplin, Henderson, Martin, Swain and Wilson.

Summary of Mortuary Reports for
June, 1899.

(TWENTY-TWO TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate popula- tion	87,748	63,390	151,138
Aggregate deaths...	122	131	253
Representing tem- porary annual death rate per 1,000	16.7	24.8	20.1
<i>Causes of Death.</i>			
Typhoid fever	4	4	8
Scarlet Fever	1	0	1
Malarial fever.....	1	9	10
Whooping-cough...	0	3	3
Measles	1	0	1
Pneumonia.....	3	7	10
Consumption	5	13	18
Brain diseases.....	9	1	10
Heart diseases.....	8	4	12
Neurotic diseases...	3	0	3
Diarrhœal diseases	19	23	42
All other diseases..	66	64	130
Accident.....	2	3	5
	122	131	253
Deaths under five years.....	60	47	107
Still-born.....	7	10	17

School Directors as Boards of Health.

The law of Pennsylvania, passed last winter, authorizing the school boards of the various townships in the rural districts to act as boards of health, is as follows:

SECTION 1. Be it enacted, etc., that the School Directors in each township of the State of Pennsylvania shall, in addition to the power vested in them by existing laws, have full power and authority to make and enforce all needful rules and regulations to prevent the introduction and spread of contagious or infectious diseases, by the regulation of intercourse with infected places, by prohibiting from attending any public school

any child or other person belonging to or residing with the family of any person, or residing in the same house in which any person may be suffering from cholera, small-pox (variola varioloid), scarlet fever, typhus fever, yellow fever, relapsing fever, diphtheria, diphtheritic croup or membranous croup, or any other contagious disease; and it shall be the duty of all physicians practicing within the several townships to report to the secretary of such school board the names and residences of all persons coming under their professional care, afflicted with any of the aforesaid contagious or infectious diseases, within twenty-four hours after the development of any such disease.

SEC. 2. In the case of the prevalence of any contagious or infectious disease in any township of this Commonwealth, the Board of School Directors of such townships shall have power by themselves, or by a sanitary agent to be by them appointed, to enter at any time upon any premises in the said township in which there is suspected to be any contagious or infectious disease, or nuisance productive of such disease or detrimental to the public health, for the purpose of examining the said premises and abating any nuisance found thereon detrimental to the public health.

SEC. 3. Before appointing any sanitary agent to aid in enforcing the rules and regulations of the board, as aforesaid, the board shall make application to the Court of Common Pleas of the county in which the township is located, or to a law judge thereof, setting forth particularly the reasons which, in their judgment, make the application of such agent necessary, setting forth also the compensation which the board deems proper to pay for the services of such sanitary agent, and if the said court or judge thereof shall approve the reasons given by the said board for the appointment of such sanitary agent, and shall also approve the compensation deemed proper therefor, said board shall have the authority to appoint such sanitary agent for such term as may be designated by the said court or judge thereof, the said compensation to be paid out of the school fund of the respective townships.—
The Sanitarian.

Mortuary Report for June, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		Deaths under five years.	Still-born.
		By Races.	Total.																		By Races.	By Towns.		
Asheville	W.	8,000		19.5	...	1	2	7	1	...	13	21	4	2	
Dr. M. H. Fletcher.	C.	5,000	13,000	19.2	2	...	1	3	
Charlotte	W.	17,153		15.4	1	1	5	11	1	...	29	44	16	...	
Dr. F. O. Hawley.	C.	9,000	26,153	29.3	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Durham	W.	4,000		3.0	1	1	7	
Dr. Z. T. Brooks.	C.	2,000	6,000	36.0	...	2	1	3	6	
Fayetteville	W.	3,500		6.8	1	...	1	1	...	
Dr. J. V. McGongan.	C.	2,500	6,000	9.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Greensboro	W.	6,000		14.0	1	2	2	2	7	12	3	...	
J. S. Michaux, C. Ck.	C.	4,000	10,000	15.0	...	...	...	...	...	...	1	1	...	...	...	1	2	...	...	...	...	...
Henderson	W.	2,250		10.7	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...
Dr. W. J. Judd.	C.	2,000	4,250	24.0	...	...	...	...	...	...	...	...	...	...	...	3	1	...	...	...	...	...
Hillsboro	W.	400		30.0	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...
Dr. C. D. Jones.	C.	300	700	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...
Marion	W.	800		15.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...
Dr. B. A. Cheek.	C.	400	1,200	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...
Monroe	W.	1,800		6.7	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	3	...
Dr. J. M. Blair.	C.	600	2,400	40.0	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oxford	W.	1,200		10.0	1	1	2	1	2	
Dr. S. H. Cannady.	C.	1,100	2,300	10.9	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Raleigh	W.	11,000		14.2	1	2	1	...	4	5	13	29	5	2	
T. P. Sale, Clerk B. H.	C.	9,000	20,000	21.3	...	1	...	...	...	...	...	4	1	1	...	4	5	...	...	16	6	3
Rockingham	W.	1,200		10.0	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	2	...
Dr. J. M. Covington.	C.	600	1,800	20.0	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...
Rocky Mount	W.	1,600		22.5	...	...	...	...	...	...	1	...	...	...	...	1	1	...	...	3	5	...
Dr. G. L. Wimberley.	C.	1,000	2,600	24.0	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Salem	W.	4,100		14.6	1	4	5	6	2	1	
S. E. Butner, Mayor.	C.	450	4,550	26.7	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...
Salisbury	W.	4,000		18.0	1	5	10	4	...	
Dr. W. W. McKenzie.	C.	2,000	6,000	24.0	...	...	...	...	...	...	...	1	1	...	1	1	...	...	...	4	...	...
Seotland Neck	W.	775		15.5	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...
J. A. Perry, Mayor.	C.	425	1,200	56.5	2	2	3	2	...	
Tarboro	W.	1,300		18.5	2	2	2	4	6	...	
Dr. L. L. Staton.	C.	1,200	2,500	40.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Warrenton	W.	970		12.4	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	1	...
Dr. P. J. Macon.	C.	765	1,735	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...
Washington	W.	3,500		34.3	1	1	2	2	...	1	3	10	22	3	...	
Dr. P. A. Nicholson.	C.	2,500	6,000	57.6	1	1	1	...	1	1	...	...	...	...	3	4	...	...	...	12	5	...
Weldon	W.	700		17.1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...
J. T. Gooch, Mayor.	C.	750	1,450	16.0	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	2	...
Wilmington	W.	11,000		24.0	1	1	...	1	20	22	54	12	...	
Dr. W. D. McMillan.	C.	15,000	26,500	24.8	...	4	...	...	...	...	1	1	...	1	...	1	23	1	...	32	...	...
Wilson	W.	2,500		28.8	...	...	...	...	...	1	1	...	...	...	...	4	...	...	...	6	6	...
Dr. Albert Anderson.	C.	2,300	4,800	31.3	6	6	12	4	...	

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month."

*In addition, six non-residents died of tuberculosiis.

County Superintendents of Health.

Alamance	Dr. T. S. Fancette.	Lenoir	
Alexander	Dr. T. F. Stevenson.	Lincoln	Dr. L. A. Crowell.
Alleghany		McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg	Dr. C. M. Strong.
Bladen	Dr. Newton Robinson.	Mitchell	Dr. C. E. Smith.
Brunswick		Montgomery	
Buncombe	Dr. E. R. Morris.	Moore	Dr. Gilbert McLeod.
Burke	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell	Dr. A. F. Houck.	Northampton	Dr. H. W. Lewis.
Camden	Dr. W. D. Kellam.	Onslow	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico	
Catawba	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Ayddlett.
Chatham	Dr. H. T. Chapin.	Pender	Dr. George F. Lucas.
Cherokee	Dr. S. C. Heighway.	Perquimans	Dr. C. C. Winslow.
Chowan	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. W. E. Sanderson.	Pitt	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus	Dr. I. Jackson.	Polk	Dr. C. J. Kenworthy.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare		Rockingham	Dr. Sam Ellington.
Davidson	Dr. John Thames.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. J. W. Blount.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. J. W. Littleton.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. A. M. Bennett.
Gates	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham		Tyrrell	
Granville	Dr. S. A. Cannady.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Drs. W. T. & G. Cheat-
Guilford	Dr. B. W. Best.		ham.
Halifax	Dr. I. E. Green.	Wake	Dr. P. E. Hines.
Harnett	Dr. O. L. Denning.	Warren	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga	Dr. W. B. Council.
Hertford	Dr. John W. Tayloe.	Wayne	Dr. W. J. Jones.
Hyde		Wilkes	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson	Dr. E. G. Moore.
Jackson	Dr. J. H. Wolf.	Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

.....

Has any epidemic occurred among domestic animals? If so, what?

.....

What is the sanitary condition of your section, public and private?

.....

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General Remarks:

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..... M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
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A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

AUGUST, 1899.

No. 5.

Yellow Fever.

The announcement on July 30th of the existence of a number of cases of yellow fever in the Soldiers' Home at Hampton, Va., and later that it had appeared in Phœbus, caused us considerable anxiety, lest it should extend to Norfolk and thence to our own State. But remembering that the Home was an institution of the United States Government, and having confidence in the efficiency of the Marine Hospital Service in such work, we rested comparatively easy. That our confidence was not misplaced the result so far has shown, and it is with profound satisfaction that we note the control and restriction of the disease. We cordially congratulate Surgeon-General Wyman and his associates in the Service on their admirable management of the outbreak.

The Doctor as a Carrier of Disease.*

BY JOHN T. HOWELL, M. D.,
NEWBURGH, N. Y.

In these times of successful quarantine and disinfection there yet remains a much neglected danger, which every physician, to be consistent, should carefully consider and endeavor to prevent.

We have fought with pride the victorious battles against sepsis and contagion and have drawn the restrictions more and more tightly about quarantined patients, until they are beginning to dread the deprivations entailed almost as much as the disease itself. But this, we philosophize, is a necessary alternative, and not even our patients would be willing to turn back to the old way by which disease was so widely spread.

The optimist avers he can almost see the dawn of contagious immunity; but I

*Read before the Medical Society of the county of Orange, N. Y., May 2, 1899.

think it is evident that that goal cannot be reached until there is maintained a more perfect barrier against contagion than the following familiar picture illustrates:

A doctor is called to see a case of scarlet fever. He announces his diagnosis and recommends that the patient be strictly quarantined in a room with a special nurse, who must change her clothing whenever leaving the room, and must avoid contact with other persons, especially children. These and many other necessary restrictions on the part of the family are faithfully carried out during the whole period of the disease.

The doctor meanwhile visits his patient frequently, and in examining the throat and body comes more or less in contact with the contagion, especially by means of his clothing, which he does not change or disinfect before leaving the house.

It has been asserted in the past, even by eminent authority, that contagion could not be sufficiently impregnated by such exposure as to be carried away; but in the light of the researches of to-day such statements hardly need to be discussed. Certainly the doctor's person or clothing has not yet been proved to be immune from contagion, and I fear that a careful examination of his coat sleeves would reveal a startling number and variety of such disease germs.

Fortunately his patients have a vigilant protector in *resistentia nature*, although the physician must occasionally sow some seed in the fertile soil with which he so often comes in contact. When we consider the possibilities of a contagious disease germ—its vitality, reproductive powers and the destruction it may cause—our responsibility as sentinels overshadows all other considerations.

Another way by which the doctor may carry disease is on his hands, especially under his nails; and the difficulty with which their proper disinfection is accomplished makes them a frequent source of infection.

Much has been accomplished by the emphasis which has been put upon this danger, but still there are physicians who continue most careless about this source of infection to their patients. I suppose many a physician would scoff at or resent the suggestion that he should wear his hair closely trimmed and beard shaven; but a second thought must convince him that the idea is in no way extreme. Then, too, his thermometer, hypodermic syringe, medicine case, prescription book and many other daily necessities need to be watched, as they are used about from house to house and may easily become carriers of disease. All of these channels through which contagion or sepsis might be, and I believe often are, spread are well enough known, but so generally overlooked that I have thought it important to bring the danger to your attention, and at the same time offer some suggestions as to ways in which they may be averted.

In regard to contagion, it has been shown that it travels chiefly along certain well-known channels; and I believe were our energies bent almost wholly toward the control of these, many of the rigorous restrictions of the present system of quarantine might be safely relaxed. Physicians should point out these sources of danger and endeavor to educate the public to understand that it has only these to really fear, and that it is the same with contagion as in other matters—probable dangers, not possible ones, warrant attention.

The doctor in attendance upon a patient

suffering from a contagious disease is most liable to carry the germs away upon his clothing, and therefore that should be properly protected, especially at those times when the contagion is most actively thrown off.

For this purpose I have worn for a number of years past a gossamer rubber overcoat, which forms a perfect protection, and because of its lightness is very convenient. A complete covering would include a hood for the hair; but with care its use is seldom necessary. With such an impervious protection and care to avoid unnecessary contact with the patient, the doctor, after having disinfected his hands (and face if need be), can leave the room, hang up his coat in some place provided near by, and walk out of the house conscious that he does not carry with him any of the dreaded contagion. I keep two or more such coats on hand, which are thoroughly disinfected after each case, and when rolled up occupy the space of the smallest kind of a bundle in my carriage.

For the disinfection of clothing, when from any accident that may become necessary, the use of formaldehyde gas is undoubtedly one of the best means we now have. It in no way injures fabric, and therefore can be safely used to disinfect anything which cannot be subjected to heat. Sterilization by high temperature is the crucial method, but obviously can be used but in a limited way for one's personal needs.

The rubber tissue finger cots afford us a most practical and efficient protection. They protect our fingers from infectious wounds, or when making official examinations; and when the cots have been sterilized they will protect an aseptic wound from any infection that may be upon our fingers. The use of these and

rubber gloves has at least made it possible for us to have sterile hands at any time, and they form the last link needed to perfect aseptic surgical technique.

While the control of contagion is not so wholly within our power as that of infection, the powerful re-inforcements we have received from antitoxines promise to relegate, in time, diphtheria, and perhaps scarlet fever, to the place of small-pox. But as the control of small-pox, we should remember, was not accomplished alone by vaccination, so must the troublesome methods of quarantine and disinfection continue to be employed in the warfare against other contagious diseases.

With such a victory in view, we should renew our courage and so strengthen all of these weapons that they shall be impervious to those darts from which we have in the past failed to shield our patients.—*N. Y. Medical Journal*.

**Extracts from the Editor's Table,
Sanitarian, August, 1899.**

POLLUTED SOIL AND ITS DANGERS.

Polluted water is so generally recognized as the prevailing means by which typhoid fever, cholera and other intestinal diseases are propagated that polluted soil, the chief adjuvant of polluted water, though scarcely less dangerous in its relation to intestinal diseases, and more dangerous in its relation to some other infectious diseases and much more durable than polluted waters, is not infrequently overlooked.

Bollinger demonstrated the presence and long retained vitality of spores of bacillus anthracis in the soil nearly thirty years ago and pointed out the important

bearing of this retained vitality of germ spores on the question of soil infection generally; and, referring to the irregularity in the outbreaks of epidemic diseases, he suggested their probable dependence upon the conditions, favorable or otherwise, under which the vitality of their germs was maintained.

Enormous numbers of bacteria in great variety have been found in the soil by various observers. Infusions made from manured fields and garden earth, even though diluted a hundred times or more, still contain thousands of bacteria in every drop; and the soil and dust of roadways and streets always contain large numbers. Beumer, in experimental researches for bacteria in the soil (1886), obtained from a specimen of sandy humus taken from the depth of three metres, 45,000,000 to the gramme. In a churchyard, at a depth of four metres, the number in one experiment was 1,152,000, and in another 1,278,000 to the gramme. Naegele and Buckner have demonstrated that the porous soil of the earth will yield germs existing in it to ascending currents of the air even when wet, a fact which has a strong bearing upon the significance of the soil in the spread of infectious diseases generally.

When we reflect upon the continually accumulating mass of organic matter on the surface of the ground and in the subsoil of populous places, and particularly where there is no subsoil drainage, and consequently the need of bacteria for the transformation of such matter into its original elements, and consider the constant process of putrefaction in such soil by which it is decomposed and incorporated with the soil, dissolved in the soil water or taken up by the ground air, and consider the agencies by which these transformations are accomplished, we are

prepared in some degree to appreciate the relations of bacteria, and the conditions by which they are sustained and propagated, to human health.

Fortunately for the well being of mankind, the saprophytic or salutary bacteria in the soil commonly greatly exceed in number the pathogenic bacteria or disease germs. And, between these, as between the leucocytes or white-blood corpuscles and parasites in the blood, there is an unceasing antagonism of forces.

As in the one case, an excessive accumulation of organic matter in the soil, and conditions of moisture and temperature more favorable to the multiplication of pathogenic bacteria than of the saprophytic, will promote the ascendancy of the former; so, in the other case, if the physique is impaired from any cause, badly nourished, intemperance, overwork, etc., by which the leucocytes are diminished or enfeebled, they are in no condition to resist the invasion of pathogenic germs of any kind.

Bacteria of various kinds exist in the soil and retain their vitality for indefinite periods. Graucher and Deschamps assert that it is probable that pathogenic bacilli germinate in the soil, and they cite examples of cholera, typhus and other species of bacilli found at various depths and for various periods. With regard to typhoid fever and plague, the reader is referred to articles in our preceding number and repeatedly in preceding volumes, and with reference to yellow fever to the literature of the subject generally, but exceptionally to that of Charleston, S. C., for a twofold purpose: The frequent occurrence of yellow fever there during many years, while the undrained soil was loaded with putrescible matter and more or less constantly upturned regardless of season; and conversely, the non-recurrence

rence of the disease during the last forty years while the soil has been drained. Manifestly with subsoil drainage every downpour of rain is a soil cleansing process, the residue being carried off by the drains.

However, it should not be inferred from this citation that the sanitary conditions of Charleston are adequate against the introduction or possible eruption of yellow fever. The drains referred to are dilapidated, much filth has accumulated and is still accumulating in the soil and efficient sewerage is an imminent need. There are many night soil pits and other filth storage recesses throughout the city, adding to the receptive conditions of the soil, while their foul emanations greatly add to sickness susceptibilities of all sorts.

It would be superfluous to the readers of the *Sanitarian* to here reiterate the natural history of yellow fever, so fully written and so frequently referred to in its pages during the last twenty-five years. Few diseases have been more thoroughly studied or so often described. It is conceded to be a disease of pathogenic germ origin, though the germ is still of questionable character. The conditions of its vitality, however, are sufficiently well known to justify the conclusion that, if dealt with intelligently, it will ere long cease to be tolerated in this country.

Koch and Duclaux tell us that pathogenic germs leave the earth in many ways to attack men and animals. The turning up of an undrained soil liberates pathogenic germs, and when the soil is not disturbed for a long time a colossal germination frequently goes on. Exhumation frees the bacteria latent in the soil, hence the epidemics that follow the upturning of fresh ground. The soil which adheres to the body, to the feet of animals and

that which is carried by insects disseminates pathogenic germs. Currents of air transport superficial dust and so transport the spores which have resisted desiccation.

The two most potent means of destruction which pathogenic bacilli encounter are the saprophytic microbes and solar light. As before remarked, the saprophytic microbes are in continual strife with the pathogenic germs, and have generally the advantage.

Solar light alone is fatal to most bacilli, and, according to Duclaux, it is the most universal means of sanitation, and the most economical and potent to which public or private hygiene can have recourse.

A NEW ANTITOXIN.

Dr. Oscar Loew, one of the vegetable pathologists of the United States Department of Agriculture, has developed to what he believes is a point of practical use a new germicide, which promises to supersede the serum treatment now in use in diphtheria, fevers and many other diseases. Dr. Loew's work has been carried on for several years, in collaboration with Dr. R. Emmerich, in the laboratories of Munich and this country.

The treatment is similar in some respects to the serum treatment, but depends on a different principle, the basic idea being the presence of a class of ferments known as enzymes, which are produced by the same bacteria that produce the disease. It is because of the production, or rather overproduction, of a certain enzyme that a disease such as typhoid will "run its course" and then die out of the system. The bacteria in this case, it is stated, are simply killed out by the ferment they produce. The object of the new treatment is to produce a pure enzyme, which, introduced into the human

system, will kill the disease germs without injuring the patient. This differs from the principle of inoculation for small-pox and other diseases, where the object is to give the patient a mild type of the disease to render him immune to the more virulent type.

Dr. Loew and Dr. Emmerich have studied and cultivated the enzymes of various diseases, and, it is claimed, have found that the enzymes of certain bacteria will kill not only their parent germs, but also the germs of cholera, typhoid fever, anthrax, diphtheria, black plague, staphylococci and probably genococci. An enzyme that will be fatal to tuberculosis is being sought, though the bacillus of tuberculosis seems to be incapable of producing an enzyme that is fatal to itself. This is also true of the black plague, and for this reason the serum of black plague was applied without success in the cases recently developed in one of the laboratories in Vienna.

The enzymes are very unstable products, and for this reason quickly deteriorate, but Dr. Loew believes he has found a method of preserving them in shape for use. The further development of this form of treatment is awaited with interest by scientists.

THE KISSING BUG.

That annoying insect popularly known as the "kissing bug" (*Medical News*, July 8th), which has been epidemic recently in Washington and Brooklyn, has visited Philadelphia, in the course of its peregrinations northward, its presence here having become very evident by reason of the dozens of persons who have suffered from its bite during the past three or four days. The bites of this insect, which usually occur on the lips of the individual attacked—hence the name, "kissing bug"—are quickly followed by extensive

swelling of the part, which becomes red and inflamed, and exceedingly sensitive. Signs of active cellulitis are often present, and the lips swell to two or three times their normal size, so that articulation and eating may be impossible. The process subsides rapidly after forty-eight to seventy-two hours' duration. The exact identity of the insect concerned in this epidemic is somewhat in doubt, but it is thought to be one of the varieties of the so-called "assassin bugs," probably the *opiscoetus personatus*, which is a common parasite of the ordinary bed bug and house fly. It is an insect nearly an inch in length, of dark, brownish-red color and having six legs and long antennæ. During the past week more than a dozen persons have applied for hospital treatment on account of its bites, and according to current reports the list of its victims continues to increase from day to day.

Review of Diseases for July, 1899.

EIGHTY-ONE COUNTIES REPORTING.

Eighty-seven counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of July the following diseases have been reported from the counties named:

MEASLES.—Beaufort, 1; Craven, 7; Cumberland, 6; Durham, several; Greene, 2; Onslow, 1; Pitt, in all parts; Stanly, a few cases; Wilson, 12; Yadkin, 4—10 counties.

WHOOPIING-COUGH.—Ashe, 24; Beaufort, several cases; Buncombe, 2; Caldwell, 18; Catawba, 1; Chowan, several; Columbus, a few; Granville; Greene, 1; Harnett, a few; Jones, 1; Mecklenburg; New Hanover, 1; Perquimans, 3; Pitt, in all parts; Stanly, epidemic; Union, epidemic; Wayne, 5; Wilson, 40; Yancey, 10—20 counties.

SCARLATINA.—Franklin, 1; Mecklenburg, 3; Richmond, 5.

DIPHTHERIA.—Alamance, 2; Durham, 1; Sampson, 1; Surry, 1.

TYPHOID FEVER.—Alamance, 6; Alexander, 2; Beaufort, 6; Buncombe, 2; Burke, 3; Cabarrus, 21; Caldwell, 20; Catawba, 5; Chatham, 3; Cherokee, 1; Chowan, 3; Columbus, 2; Craven, 20; Cumberland, 1; Davidson, 8; Davie, 1; Durham; Edgecombe, 1; Franklin; Gaston, in all parts; Granville; Greene, 6; Guilford, 12; Harnett, many; Haywood, 10; Henderson, 2; Hertford, 3; Iredell, several; Jackson, 6; Lincoln, 2; McDowell; Martin, 2; Mecklenburg; Mitchell, 10; Moore, 4; Nash, 9; New Hanover, 3; Northampton, many; Onslow, 2; Orange, 2; Pasquotank, 1; Perquimans, 5; Person, a few; Pitt, in all parts; Polk, 3; Richmond, 13; Robeson; Rowan, 10; Rutherford, many; Sampson, a few; Stanly, several; Surry, 4; Union, 12; Vance, in all parts; Wake, 1; Warren, 3; Wayne, 10; Wilkes; Wilson, 10; Yadin, 1; Yancey, 12—61 counties.

MALARIAL FEVER.—Alamance, in all parts; Beaufort; Cabarrus, in all parts; Carteret; Chowan, in all parts; Columbus; Craven; Cumberland, in all parts; Davie; Durham; Gaston; Granville, in all parts; Greene, in all parts; Guilford; Harnett; Hertford; Iredell; Johnston; Jones; New Hanover and Northampton, in all parts; Orange; Pender; Perquimans, in all parts; Person, a few; Richmond; Robeson; Rowan, in all parts; Sampson; Transylvania; Tyrrell; Union; Watauga; Wilson, in all parts—34 counties.

MALARIAL FEVER (PERNICIOUS).—Beaufort, 5; Harnett, a few cases; Union, many cases.

MALARIAL FEVER (HEMORRHAGIC).—Craven, 1; Hertford.

DIARRHEAL DISEASES.—Alamance; Bertie; Burke; Catawba; Currituck; Granville; Harnett; Haywood; Iredell; Robeson; Sampson; Surry; Watauga—13 counties

INFLUENZA.—Henderson.

MUMPS.—Cleveland; Pitt, in all parts.

ROSEOLA.—Person, epidemic.

SMALL-POX.—Bertie, 1; Caldwell, 13; Caswell, 6; Currituck, 2; Forsyth, 2; Gates, 12; Halifax, 7; Hertford, 2; Richmond, 1, Rowan, 1—10 counties.

CHOLERA IN CHICKENS.—Yancey.

CHOLERA IN HOGS.—Currituck; Gates.

RABIES IN DOGS.—Surry.

STAGGERS IN HORSES.—Bladen.

TEXAS FEVER IN CATTLE.—Alamance, in one section.

No diseases are reported from Bladen, Macon, Madison, Randolph, Stokes and Washington.

No reports have been received from Anson, Clay, Duplin, Rockingham, Swain.

Summary of Mortuary Reports for July, 1899.

(TWENTY-ONE TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	88,378	62,475	150,853
Aggregate deaths.....	99	106	205
Representing temporary annual death rate per 1,000	13.4	20.4	16.3
<i>Causes of Death.</i>			
Typhoid fever	6	2	8
Malarial fever.....	3	5	8
Diphtheria	1	0	1
Whooping-cough...	1	1	2
Pneumonia.....	1	0	1
Consumption	11	13	24
Brain diseases.....	8	0	8
Heart diseases.....	3	6	9
Neurotic diseases...	0	1	1
Diarrhoeal diseases	18	12	30
All other diseases..	46	65	111
Accident.....	1	1	2
	99	106	205
Deaths under five years.....	44	39	83
Still-born.....	3	17	20

Mortuary Report for July, 1899.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Nervotic Diseases.	Diarrhæal Diseases.	All Other Diseases.	Accident. Suicide.	Violence.	TOTAL DEATHS.				
		By Races.	Total.	By Races.	Total.																By Races.	By Towns.	Deaths under five years.	Still-born.	
Asheville	W.	8,000	13,000	12.0	14.8	...	...	...	...	...	...	...	1	...	...	...	1	4	1	...	8	16	3	...
Dr. M. H. Fletcher.	C.	5,000		19.2		...	...	...	...	...	...	...	2	1	...	...	2	4	...	...	2	3	12	...
Charlotte	W.	17,153	26,153	16.1	17.4	...	...	1	...	...	...	...	5	1	...	...	1	16	...	...	23	38	15	2
Dr. F. O. Hawley.	C.	9,000		20.0		...	...	...	...	...	...	...	...	1	...	...	4	7	...	...	15	10	1	...
Durham	W.	4,000	6,000	21.0	22.0	...	...	1	1	...	...	1	...	...	...	...	1	2	...	...	4	11	4	...
Dr. Z. T. Brooks.	C.	2,000		24.0		...	...	1	...	...	...	...	...	...	...	...	3	...	...	...	4	1	1	...
Fayetteville	W.	3,500	6,000	13.7	18.0	...	...	...	...	...	...	1	2	1	...	...	...	...	...	...	4	9	...	...
Dr. J. V. McGougan.	C.	2,500		24.0		...	...	...	...	...	...	1	...	...	...	...	2	1	...	...	5	5	2	...
Greensboro	W.	6,000	10,000	10.0	18.0	1	...	...	...	...	...	1	...	1	...	...	2	1	...	...	5	15	1	1
J. S. Michaux, C. Ck.	C.	4,000		30.0		1	...	...	...	...	...	1	...	...	1	1	6	...	...	...	10	5	1	...
Henderson	W.	2,250	4,250	10.7	11.0	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	4	...	2
Dr. W. J. Judd.	C.	2,000		12.0		...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...
Hillsboro	W.	400	700	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. C. D. Jones.	C.	300		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Marion	W.	800	1,200	0.0	10.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
Dr. B. A. Cheek.	C.	400		30.0		1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Monroe	W.	1,800	2,400	13.3	10.0	...	...	...	1	...	...	...	...	1	...	...	...	...	...	...	2	2	...	...
Dr. J. M. Blair.	C.	600		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Oxford	W.	1,200	2,300	20.0	20.9	2	2	4
Dr. S. H. Cannady.	C.	1,100		21.8		...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	1	...
Raleigh	W.	11,000	20,000	14.2	13.2	...	...	...	...	...	...	...	2	...	1	...	5	7	...	...	13	22	6	...
T. P. Sale, Clerk B. H.	C.	9,000		12.0		...	...	...	...	...	...	...	...	...	...	...	7	...	...	...	...	...	2	1
Rockingham	W.	1,300	1,750	18.5	20.6	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	2	1	...
Dr. J. M. Covington.	C.	450		26.7		...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	3	1	...
Rocky Mount	W.	1,600	2,600	30.0	23.1	...	...	1	...	...	...	...	...	...	...	...	2	1	...	...	...	4	5	4
Dr. G. L. Wimberly, Jr.	C.	1,000		12.0		...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...
Salem	W.	4,100	4,550	20.5	23.4	...	...	...	...	...	...	2	...	...	...	...	...	5	...	...	7	8	3	...
S. E. Butner, Mayor.	C.	450		26.7		...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...
Salisbury	W.	4,000	6,000	9.0	12.0	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...	3	6	2	...
Dr. W. W. McKenzie.	C.	2,000		18.0		...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	3	2	...	...
Scotland Neck	W.	775	1,200	31.0	30.0	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	3	...	...
J. A. Perry, Mayor.	C.	425		28.2		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3	...	...
Tarboro	W.	1,300	2,500	0.0	9.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...	...
Dr. L. L. Staton.	C.	1,200		20.0		...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	...	2	...	...
Washington	W.	4,000	7,000	3.0	15.4	...	...	1	...	1	...	2	...	...	...	...	1	...	...	...	...	1	9	1
Dr. P. A. Nicholson.	C.	3,000		32.0		...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	8	3	...	...
Weldon	W.	700	1,450	0.0	16.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	1	...
J. T. Gooch, Mayor.	C.	750		32.0		...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	...	2	...	...
Wilmington	W.	12,000	27,000	11.0	16.9	1	...	...	...	...	...	3	...	...	...	...	7	...	...	...	11	38	2	...
Dr. W. D. McMillan.	C.	15,000		21.6		...	...	1	...	...	...	2	...	...	...	...	23	1	...	...	27	8	8	...
Wilson	W.	2,500	4,800	14.4	17.5	...	...	1	...	...	...	...	...	...	...	...	2	...	...	...	3	2	...	...
Dr. Albert Anderson.	C.	2,300		20.8		...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	4	7	1	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*In addition, two non-residents died of tuberculosis.

County Superintendents of Health.

Alamance.....	Dr. T. S. Faucette.	Lenoir.....	
Alexander.....	Dr. T. F. Stevenson.	Lincoln.....	Dr. L. A. Crowell.
Alleghany.....		McDowell.....	Dr. B. A. Cheek.
Anson.....	Dr. E. S. Ashe.	Macon.....	Dr. F. L. Siler.
Ashe.....	Dr. Manley Blevins.	Madison.....	Dr. Jas. K. Hardwick.
Beaufort.....	Dr. P. A. Nicholson.	Martin.....	Dr. W. H. Harrell.
Bertie.....	Dr. H. V. Dunstan.	Mecklenburg.....	Dr. C. M. Strong.
Bladen.....	Dr. Newton Robinson.	Mitchell.....	Dr. C. E. Smith.
Brunswick.....		Montgomery.....	
Buncombe.....	Dr. E. R. Morris.	Moore.....	Dr. Gilbert McLeod.
Burke.....	Dr. J. L. Laxton.	Nash.....	Dr. J. P. Battle.
Cabarrus.....	Dr. R. S. Young.	New Hanover.....	Dr. W. D. McMillan.
Caldwell.....	Dr. A. F. Houck.	Northampton.....	Dr. H. W. Lewis.
Camden.....	Dr. W. D. Kellam.	Onslow.....	Dr. E. L. Cox.
Carteret.....	Dr. F. M. Clark.	Orange.....	Dr. C. D. Jones.
Caswell.....	Dr. S. A. Malloy.	Pamlico.....	
Catawba.....	Dr. Geo. H. West.	Pasquotank.....	Dr. H. T. Aydlett.
Chatham.....	Dr. H. T. Chapin.	Pender.....	Dr. George F. Lucas.
Cherokee.....	Dr. S. C. Heighway.	Perquimans.....	Dr. C. C. Winslow.
Chowan.....	Dr. T. J. Hoskins.	Person.....	Dr. J. A. Wise.
Clay.....	Dr. W. E. Sanderson.	Pitt.....	Dr. C. O'H. Laughing-
Cleveland.....	Dr. B. H. Palmer.		house.
Columbus.....	Dr. I. Jackson.	Polk.....	Dr. C. J. Kenworthy.
Craven.....	Dr. R. DuVal Jones.	Randolph.....	Dr. T. T. Ferree.
Cumberland.....	Dr. J. Vance McGougan.	Richmond.....	Dr. J. M. Covington.
Currituck.....	Dr. H. M. Shaw.	Robeson.....	Dr. H. T. Pope.
Dare.....		Rockingham.....	Dr. Sam Ellington.
Davidson.....	Dr. John Thames.	Rowan.....	Dr. W. L. Crump.
Davie.....	Dr. James McGuire.	Rutherford.....	Dr. W. A. Thompson.
Duplin.....	Dr. J. W. Blount.	Sampson.....	Dr. R. E. Lee.
Durham.....	Dr. Z. T. Brooks.	Scotland.....	
Edgecombe.....	Dr. L. L. Staton.	Stanly.....	Dr. J. W. Littleton.
Forsyth.....	Dr. John Bynum.	Stokes.....	Dr. W. L. McCanless.
Franklin.....	Dr. E. S. Foster.	Surry.....	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. A. M. Bennett.
Gates.....	Dr. W. O. P. Lee.	Transylvania.....	Dr. M. M. King.
Graham.....		Tyrrell.....	
Granville.....	Dr. S. A. Cannady.	Union.....	Dr. J. E. Ashcraft.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Drs. W. T. & G. Cheat-
Guilford.....	Dr. B. W. Best.		ham.
Halifax.....	Dr. I. E. Green.	Wake.....	Dr. P. E. Hines.
Harnett.....	Dr. O. L. Denning.	Warren.....	Dr. T. B. Williams.
Haywood.....	Dr. F. M. Davis.	Washington.....	Dr. W. H. Ward.
Henderson.....	Dr. J. G. Waldrop.	Watauga.....	Dr. W. B. Councill.
Hertford.....	Dr. John W. Tayloe.	Wayne.....	Dr. W. J. Jones.
Hyde.....		Wilkes.....	Dr. J. W. White.
Iredell.....	Dr. Henry F. Long.	Wilson.....	Dr. E. G. Moore.
Jackson.....	Dr. J. H. Wolf.	Yadkin.....	Dr. B. B. Hauser.
Johnston.....	Dr. L. D. Wharton.	Yancey.....	Dr. J. M. Fairchild.
Jones.....	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

.....

Has any epidemic occurred among domestic animals? If so, what?

.....

What is the sanitary condition of your section, public and private?

.....

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General Remarks:

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..... M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
HENRY W. LEWIS, M. D., Jackson.
HENRY H. DODSON, M. D., Milton.

C. J. O'HAGAN, M. D., Greenville.
J. L. NICHOLSON, M. D., Richlands.
ALBERT ANDERSON, M. D., Wilson.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

SEPTEMBER, 1899.

No. 6.

Health Conference.

The usual "Health Conference with the People" by the Board will take place on October 26th at Wilson. Wilson is a live, progressive town, one of whose influential citizens is a member of the Board, and we are very hopeful of a successful meeting.

Faith in the Unseen.

In discussing the difficulties that obstruct the propagation of the gospel of health we have often said that sanitation was like religion, in that the chief trouble in impressing its importance upon people was a want of faith. The evidence is all negative. No one believes he is going to be sick until he is actually attacked by disease, and as long as he remains well he takes it as a matter of course, and has,

as a rule, no realizing sense of what he owes for his good health to the observance of sanitary laws. In this connection we take pleasure in copying from the last *Ohio Sanitary Bulletin* the appended article on this subject from the pen of its editor, Dr. Probst, the accomplished Secretary of the Board of Health of that State:

FAITH IN THE UNSEEN.

To doubt has always been a trait of human character. "Seeing is believing," expresses, proverbially, the attitude of the race. Mother Eve didn't *really* believe that the apple would disagree with her. It is but natural that men should doubt facts falling outside of their experiences. How many tumbles a child must get in learning the law of gravitation. We say, "Be careful or baby will fall," but baby goes on falling until it has *itself* learned how not to do so. It's

mother had learned the thing in the same way.

"A burnt child dreads the fire," but it is the child that is burned, and not some other child that may have witnessed the operation. We learn by our *own* experiences. Do we really believe anything that we haven't found out for ourselves?

But, with all our doubts, how credulous we are! Isn't this very credulity due to the fact that we form our *own* opinions according to our *own* experiences? We only accept the evidence of our own senses, and the reasonings of our own mind; and how easily they may deceive us. Certainly, we are constantly acting upon faith in the experiences of others, but this is because related experiences of our own allow us to accept these as true. Common experience, or what is known as public opinion, largely guides us. We doubtless inherit or grow up in many of our beliefs, certainly our prejudices, regarding many things. How many judgments we form. These are almost like our own experiences; and yet these borrowed experiences do not so deeply impress us as our own. We act upon them in a half-hearted way, and readily disbelieve them when some one plausibly opposes them.

Sanitation, for the great majority of people, must rest largely upon faith in things unseen. A favored few, with the microscope, have looked upon the cause of consumption, of diphtheria, of cholera, of typhoid fever, and of some other diseases of this class, but for the many this remains a mystery.

Note the attitude of the public mind in regard to "microbes," "germs" and "bugology" in general. See how the "funny man" finds in these *unseen*, and doubted disease producers, enjoyable en-

tertainment for millions of Thom-asses. Consider the disease consumption; for centuries it was regarded as an *hereditary* disease, and still is by a large number. Some of our insurance companies refuse to insure a man whose uncle or aunt died of that disease. It was, perhaps, natural in seeing whole families *slowly* extinguished by consumption, to believe that it was handed down from father to son. Had they all died rapidly, as in cholera or small-pox, its contagiousness would not have been doubted. But it is now fifteen years since the veritable cause of consumption was shown, and fully ten years since the scientific world *proved* it; and that this cause, a berated *germ*, is not inherited but is *inhaled*. How many people really believe this?

Perhaps our test of a real belief is too severe a one; that is, that men act in accordance with their beliefs. If every act is caused by our belief that it will bring us a pleasant experience, or, what is the same thing, enable us to avoid a painful or unpleasant one, we would still maintain that few of us fully believe in many of the so-called fundamental truths of sanitation.

It may be said that our carelessness in these matters is due to our knowledge or faith in the law of probabilities, or rather *improbabilities*. But how many men without thought, or some weighty reason, would go into battle; yet the probability of being killed, or even wounded, is not great. Consider the freedom from injury of our navy in its recent battles with Spain; but how many would *carelessly* go upon one of our warships during an engagement? Indisputable records show that in many places one-seventh of all the people who have lived there died of tuberculosis, and that the *probabilities*, if not the certainty, is that one-seventh of

all *now* living there will die of the same disease. Do we believe this? If we really do, we must all believe in a paradise to come, and be very anxious to get there *soon*.

The number of persons dying yearly from typhoid fever is something appalling. In some of our large cities people are dying daily of this disease. We are assured that the cause of it is perfectly well known. That it is another one of these "bugs" (not "the kissing bug" that everybody believes in—they can *see* that), but a *water* bug. The *circulation* of this fellow has been pretty clearly shown. It is swallowed, usually in water, and grows in the intestines. It is discharged by the bowels, then reaches the seer, and thence gains the river or lake, and is pumped back again with the city's water supply, to be again swallowed by some other victim. Or it goes with the patient's discharges into a hole in the ground, finds its way into an adjacent hole (the well) and so back to some other person who clings to "the old oaken bucket."

They tell us, and give us the proof, that heat is obnoxious to the typhoid germ. That by simply boiling the water we drink we can absolutely protect ourselves against the disease—at least so far as getting it in water—by far the commonest way.

Do we believe all this? The hundreds of deaths and thousands of cases in Philadelphia, clearly shown to have been caused by drinking river water containing typhoid fever germs, proves that the people of that city have no *active* faith in these statements. This is equally true of the inhabitants of other cities.

How shall we bring home to the people a realizing sense of the truths of sanitation? That's the question. By faith

they shall be made whole. Humanitarians, as well as sanitarians (the latter includes the former) who truly have the interests of their fellows at heart, can find no work bringing greater rewards than that of carrying the gospel of sanitation into every home.

The Fruits of Sanitary Science.

By PROF. J. B. JOHNSON, Instructor of Civil Engineering, Washington University,
St. Louis, Mo.*

. . . What is it that has brought about an organized action of all nations in respect to sanitary matters? Evidently the feeling that pervades all intelligent communities that at last we have found the true cause of infectious diseases, and hence are prepared to intelligently combat them. This cause is now acknowledged to be the taking into the system, either from the air, or in our food, or in our drinking water, some of the various kinds of injurious micro-organisms, known as bacteria. Of the great variety of these, only a few are pathogenic, or disease producing, and by the wonderful discoveries of Pasteur and Koch and a host of followers, we are already well advanced toward a complete knowledge of these hitherto inscrutable sources of the most fatal of human maladies. Even now it is fully established that about 40 per cent. of all deaths are due to this class of diseases, but formerly fully 75 per cent. of deaths must have been due to these causes.

Among the diseases now known to be of bacterial origin may be mentioned, in

*Farewell Address, under the auspices of the Washington University, Association, St. Louis Mo., January 23, 1899, on the eve of his departure for Wisconsin University, having accepted the position of Dean of that institution.

the order of their virulence: Consumption, pneumonia, diarrhoeal diseases, diphtheria, typhoid fever, malarial fever, measles, whooping-cough, scarlet fever and smallpox.

The total number of deaths occurring annually in the United States by the 1890 census, from these causes, is over 350,000. It will be noticed that the above list does not include cholera or yellow fever, which have a similar origin, but which we may regard as imported diseases. The ten diseases named we have always with us, and hence they may be considered indigenous to the soil. What family is there in the whole land that does not count one or more members lost in youth or in the vigor of early or middle life by some of these fatal causes? If all these be caused by preventable infection, then we must conclude that more than 350,000 people in the United States alone are annually sacrificed to ignorance, to indifference, or to incompetence, or to all combined.

And now, believing this to be true, how should we act? Evidently we should use all possible means to learn how these pathogenic bacteria are commonly transmitted from the sick to the well, and then take the necessary precautions to prevent such transmission. As we all know, a vast amount of work of this kind has been done. We find that these germs are carried either in the air, or in food and drink. Those diseases which manifest themselves in ailments of the throat or lungs, as consumption, pneumonia, diphtheria, whooping cough and scarlet fever, are commonly caused by air-borne germs and are introduced with the air we breathe. On the other hand, typhoid and malarial fevers, cholera and diarrhoeal diseases are caused by water-borne bacteria, which are introduced

through the stomach. Since the air is breathed in common by everybody in the same inclosure, the only safety here lies in the isolation of the patients, in a plentiful supply of pure air by way of ventilation, and in the prevention, so far as possible, of the spread of the germs into the common atmosphere. Thus in the case of these air-borne germs they are not always expelled from the diseased person in the expired breath, but may escape through the skin, and in throat and lung diseases they are found in myriads in the sputum. If this be allowed to dry in the open air, then the germs are taken up as dust and carried to the throat or lungs of another person who breathes this germ-laden air. This is the common form of contagion in the case of consumption, pneumonia and diphtheria, and hence those offensive notices of prohibition of spitting in inclosed public places which we are now only beginning to see. The drying of expectorations in street and railway cars, stores, factories, schools, assembly halls, hotels, and even in our legislative chambers, has hitherto been a fertile source of contagion. I have myself seen the floor hot-air registers in the House of Representatives at Washington commonly used as cuspidors. In fact, because of their collection of dust and sweepings alone, floor registers are a constant menace to health, and should never be allowed.

While pulmonary consumption is still generally regarded as an incurable disease when once fairly developed, it is no longer held to be hereditary. A physical weakness may have been inherited which would predispose one to the attacks of this particular microbe, but this weakness would not of itself bring the disease. The specific seeds must be planted and these must come from another dis-

eased person or animal. It has been found that cattle are afflicted with these same microbes, and in extreme cases they may be found in the milk and meat from diseased cattle. The preventive measures must therefore begin with the tributary domestic animals, and every possible means employed to keep both air and food free from infection. Even domestic pests, like rats and mice, and also the domestic pets, as cats and dogs, come in for careful scrutiny, and the possibilities in this direction must be thoroughly examined into. And more than all these, perhaps, the festive fly is now charged with being a common carrier of disease germs, and it is to this apparently innocent and industrious little companion, more than to all other causes combined, that we now credit the astonishing spread of typhoid fever in our recent military camps.

In the case of the water-borne bacteria, as those producing typhoid and malarial fevers, cholera and diarrhoeal diseases, the most common means of distribution has been the drinking water. A great many proofs of this have been found which cannot be reviewed here. But a few other means of bringing these into our food and drink have been traced out. Thus a polluted water used in washing milk cans (without charging actual dilution) has been known to spread this disease to all the customers of the dairy following the practice. Since these sources are now commonly accepted as those from which typhoid fever arises, I need not dwell upon them here. The proofs, however, are numerous and indisputable, and are universally accepted by all who have examined into the matter.

That malarial diseases, including ague and intermittent fevers, are to be traced directly to the drinking water is not so

generally accepted. That this is true, however, has now been fully established, and I will cite a single case which alone is sufficient to prove the claim. At Brownsville, Texas, on the Rio Grande river, is a United States military post which takes its water from the Rio Grande. It is also surrounded by what are commonly accepted as the most typical malarial conditions, such as swamps and stagnant lagoons. Up to 1890 the hospital record of this post was by far the worst in the country in the matter of malarial diseases. The medical report for this station in 1890 gave 18.76 hospital admissions per thousand of strength, and this was a normal number for the post.

In the following year an ice plant was installed to serve the post, and incidentally a condenser coil was added to obtain distilled water for drinking purposes. A year later this water was found so beneficial that it was at once supplied to the entire post for drinking and for all culinary purposes. In the following year the hospital admissions for malarial diseases fell to sixteen per thousand of strength, or less than one per cent. of what they had been regularly during the entire life of the post.

In all cooked food disease germs, when present, are probably destroyed if the cooking is effectual, so we need only attend to the raw food and to the unboiled liquids taken into the system. Here come all fruits, berries, salads and vegetables eaten raw, many of them without even a thorough cleansing in cold water, to say nothing of having been sterilized by heat. No doubt much injury results in this way to persons of deranged digestive organs. The remedy is to cleanse thoroughly all such foods in a pure cold water suitable for drinking.

In a general way we may say that moisture, warmth and darkness are favorable conditions for the growth of these invidious parasites, and, on the contrary, we know that dryness, cold and sunshine are fatal to most of them.

Hence we find a continually moist soil, too many shade trees and damp and moldy cellars are unhealthy, while a well-drained soil, considerable sunshine and dry cellars are known to be conducive to the most perfect health. These facts being known in advance, the adverse conditions can usually be avoided and the lives of the family correspondingly prolonged. So also we see how whole States, as Indiana, for instance, have been changed from exceedingly unhealthy to perfectly healthful conditions by merely draining the ground for agricultural purposes. Formerly intermittent fevers were almost universal every fall all over that State. Now they are almost unknown, and with this change has come a change, not only of the faces of the people, but of the face of the country.

I am told that some years ago a party of St. Louis gentlemen were riding in an express train from Indianapolis eastward. They were admiring the (to them) surprising prosperity and thrift visible on all sides, and the bright and happy faces of the people, and were contrasting the present conditions with what they had known of the Hoosier State in earlier days. The change was so wonderful that it seemed to call for some unusual explanation. Several explanations were offered, such as education, the Christian religion, politics, good crops, etc. Finally one of the number told them they were all wrong. Said he: "The cause of it all is drain 'tile!'" And I think he was right. The drainage of the soil had not only improved the crops, thus leading to

increased wealth, but it had changed a swampy, water-logged, bacteria-infested soil and contaminated well water to a dry, aerated, purified and purifying soil, that is to say: a bacteria-destroying filter-bed, covering the whole face of the country, and so keeping pure and sterile the ground water, which supplied the wells and from which, formerly, they had swallowed with every glass of well water millions of malaria-producing bacterial germs.

It is in the purification of our drinking water, however, that sanitary science has probably secured its greatest triumph. There are in general but two sources of water for domestic use, namely, surface waters and ground waters. Since all surface waters, whether rivers or lakes, are composed mostly of the run-off from the surface, they must of necessity contain those impurities which are washed from the earth's surface by the cleansing rains. These are carried either in solution or in suspension, and along with inert organic or inorganic matter will always be found some thousands of bacterial forms of life in every swallow of water. As most of these are entirely harmless, we suffer no detriment, but occasionally we find some of the disease-producing bacilli previously referred to, and then, if the system is found to be in a susceptible condition, lodgment is effected, poisons produced and sickness results. In the case of ground water also, if this be in direct and close communication with the surface drainage, it is likely to be as fully contaminated as the surface water, and often very much worse.

It is only in the case of water from deep wells, which are wholly cut off from all surface contamination, that water can be obtained absolutely free from bacterial life. Such a supply is

that of Memphis, Tenn., where the artesian-well water comes from a large deposit of pure quartz sand, some hundred miles in extent, which outcrops in Central Tennessee, but which at Memphis is several hundred feet below the surface, from which it is entirely cut off by a thick stratum of blue clay. In the case of artesian waters, generally, while they are likely to be highly charged with inorganic matter in solution, they are quite free from all organic pollution and from all forms of bacterial life.

Since these sources of supply are very exceptional, however, but few cities can be supplied in this way, most of them having to rely upon the use of surface waters. In these cases, in order that they may be entirely healthy, they must be freed from their bacterial life. One of the greatest triumphs of sanitary science, as stated above, consists in proving, beyond a reasonable doubt, that this purification is effected by filtration through fine sand. Evidently the efficiency of the process does not consist in the mere straining of the water, for these micro-organisms will pass readily through the closest filter paper, and probably wherever the water can go, so far as any mechanical restriction is concerned, they can go. The action of a sand filter is something very different. Indeed the efficiency of a sand filter arises from the presence in the water of certain microscopic vegetable growths, which are collected on the sand grains on and near the top of the filter and there form a kind of porous blanket covering, through which the water to be filtered must pass. This covering is of a tough and spongy nature and is itself a growing vegetable. This gelatinous covering furnishes enticing habitations for the innumerable families of water bacteria, which here find a

home. These, in turn, attack and consume the organic matter in the water as it slowly moves downward through this superficial blanket of living and hungry organisms, so that, after passing through such a film not over a quarter of an inch thick, the water is found to have lost both its bacteria and a very large proportion of its other organic matter.

As an illustration of the efficiency of sand filtration in removing the bacteria from drinking waters, we find for the year ending May 1, 1898, from daily examinations made at Lawrence, Mass., the average number of bacteria per cubic centimetre was 5,781. After filtering, this number was reduced to an average of 37. In other words, 99.36 per cent. of them had been removed. The work here is under the direction of Hiram F. Mills, the sanitary engineer who conducted the remarkable investigation into the theory and practice of sand filtration both for water and sewage of the Massachusetts State Board of Health, and it only shows what may probably be accomplished anywhere with proper intelligence and care.

As an evidence of the practical benefits of this filtration we need only to look at the record of deaths from typhoid fever at Lawrence before and after the filtering of their water supply. Thus, for six years before filtering the water, the average annual number of deaths from this cause was 52.5 for the six years—1887–1892. This is an average of 119 per 100,000 annually. For the five years 1893 to 1897 the average was 38.5 per 100,000 annually.

If we care for more evidence of a similar character, we can find an abundance of it in various places. Thus the city of Chicago had an average typhoid fever death rate previous to 1893 of 116 per 100,000. In that year they brought into

service the inlet crib four miles from shore and abandoned the two-mile inlet that had been in use. The typhoid death rate speedily dropped to an average of 36 per 100,000.

Spread of Disease by Flies and Gnats.

At the meeting of the American Public Health Association, at Ottawa, in September last, Dr. M. A. Veeder, of Lyons, N. Y., read a paper on "The Spread of Typhoid and Dysenteric Diseases by Flies. Throughout the past summer, he said, he had made many observations in regard to the agency of flies in spreading disease. It required but little patience and skill to obtain cultures of bacilli of varied sorts from fly tracks and from the excrement of flies. Where no precautions are taken against the invasion of flies, and where no disinfectants are used upon such material, there is invariably more or less extension of these diseases. Thus in the suburbs of large cities typhoid fever is apt to be common, and this is usually ascribed to bad drinking water, whereas in many instances it is really due to shallow water closets which the flies frequent and from which they spread infection into every dining-room and pantry near by. This is the explanation that has been found to be undoubtedly correct in several small local epidemics which the writer has witnessed.

Thus in the case of an outbreak of dysentery of a very malignant type, with forty cases and ten deaths, it was noted that the disease extended from house to house, radiating from a single centre without reference to water supply or anything else in common. This epidemic, which was strictly localized in a single neighborhood, ceased as if by magic

when large quantities of disinfectants were thrown into the closets, and those having the disease were directed to keep solutions strong enough to kill bacteria of every sort constantly in the commodes in use in the houses. This being done, it did not make any difference how numerous the flies were, there being nothing any longer capable of producing disease for them to load themselves with and distribute in such manner as eventually to be taken into human stomachs.

"There is no doubt whatever," continued Dr. Veeder, "that camp fevers and dysentery become most deadly in this very way. Water from swamps or shallow wells in alluvial soil may originate diseases of a malarial type, but these, as a rule, are not very fatal. On the other hand, the sickness that kills comes from the trenches behind the camp reeking with filth borne on insect wings. It requires but little commingling of typhoid or dysenteric material to produce an epidemic under such conditions. Soldiers selected for their physical hardihood, living in the open air and having plenty to eat and even the very best of water, develop diseases of this type out of all proportion to their prevalence in the rest of the community, and that, too, in localities previously free from anything of the sort. This is commonly ascribed to the hardships they endure. Whereas those same men in an isolated lumber camp, for example, would endure tenfold the privations and exposure to cold and wet and not only would not get sick, but would become more hearty and rugged every day. Nor can the sickness among soldiers be accounted for by dissipation, for they are under greater restraints in this regard than are possible in civil life. And yet they, the flower and pick of the country,

sicken and die, far more being killed by disease, as a rule, than by the bullets of the enemy. With practically unlimited resources of men and means such as are to be had in armies, there is no reason why such material as that on which flies fatten should not be so thoroughly disposed of as to be made innocuous as well as inaccessible. It is only a question of a few gallons more or less of disinfectants daily and a little extra care in the disposal of excreta."—*The Sanitarian*.

Prof. Grassi's discovery that the Roman malaria is spread by a particular species of gnats has been verified in a curious manner at the Santo Spirito Hospital at Rome. All attempts to communicate the disease to animals had failed when a patient in the hospital volunteered to have the experiment tried on himself. He was exposed to the gnats, developed the fever, his blood showing malaria bacilli, and was then treated with quinine. The doctors think that they are now in a way to discover a serum that will render people immune to the malaria.—*Ibid*.

Review of Diseases for August, 1899.

SEVENTY-FOUR COUNTIES REPORTING.

Eighty-seven counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of August the following diseases have been reported from the counties named:

MEASLES.—Craven, 5; Durham, a few cases; Onslow, 4; Pitt.

WHOOPIING-COUGH.—Ashe, 60; Columbus, 2; Craven, 14; Duplin, 3; Granville, 1; Greene, 2; Madison, 40; Mecklenburg, 1; Perquimans, 2; Pitt; Randolph, 1; Sampson, many; Stanly, a few; Union, 6; Warren, a few; Yancey, 3—16 counties.

SCARLET FEVER.—Craven, 2; Forsyth, 1; Mecklenburg, 1; Surry, 1; Wayne, 1.

DIPHTHERIA.—Craven, 3; Forsyth, 1; Granville, 1; Haywood, 5; Orange, 2; Rockingham—6 counties.

TYPHOID FEVER.—Alamance, 6; Ashe, 2; Beaufort, a few; Bertie, 4; Buncombe, 4; Cabarrus, 12; Caswell, 2; Catawba, 4; Chatham, 6; Cherokee, 2; Chowan, 3; Clay, 2; Columbus, 2; Craven, 9; Cumberland, 1; Davidson, 16; Duplin, 6 to 10; Durham, many; Edgecombe, 2; Franklin, many; Gaston; Granville, 4; Greene, 4; Halifax; Harnett; Haywood, 8; Johnston, 2; McDowell; Macon, 6; Madison, 2; Martin, 4; Mecklenburg, 10; Moore; New Hanover, 5; Northampton, many; Onslow, 2; Orange, 2; Pasquotank, 2; Pender, 5; Perquimans, 5; Pitt; Randolph, 3; Richmond, a few; Robeson, a few; Rockingham; Rutherford, a few; Sampson; Stanly; Stokes, 6; Surry, 3; Union, 10; Vance; Warren, a few; Watauga, 2; Wayne, 5; Yadkin, 4; Yancey, 7—57 counties.

MALARIAL FEVER.—Bertie; Bladen, a few cases; Caswell; Chatham, a few; Chowan; Columbus; Cumberland, in all parts; Currituck; Durham; Franklin; Gaston; Granville; Greene; Halifax; Harnett; Iredell, in all parts; Johnston; Jones; Mecklenburg; New Hanover; Northampton, in all parts; Onslow; Pasquotank; Perquimans, in all parts; Person;

Randolph; Richmond; Robeson, many; Rockingham, in all parts; Sampson; Transylvania; Union; Yadkin—33 counties.

MALARIAL FEVER—PERNICIOUS.—Durham, a few cases; Harnett, a few.

MALARIAL FEVER--HEMORRHAGIC—Bertie, 2; Mecklenburg, 1; New Hanover, 2; Northampton, 3; Onslow, 1; Sampson, 2; Union, 15—7 counties.

MUMPS.—Pitt.

DIARRHOEAL DISEASES—Alamance; Currituck; Moore; Yancey.

SMALL-POX.—Bertie, 1; Gates, 9; Halifax, 2.

CHOLERA IN HOGS.—Macon, Moore and Washington.

PINK EYE—HORSES.—Washington.

SPLenic FEVER IN CATTLE.—Warren.

STAGGERS IN HORSES.—Columbus.

No diseases are reported from Alexander, Carteret, Cleveland, Davie, Jackson, Polk, Wake and Wilkes.

No reports have been received from Anson, Burke, Caldwell, Guilford, Henderson, Hertford, Lincoln, Mitchell, Nash, Rowan, Swain and Wilson.

Summary of Mortuary Reports for August, 1899.

(TWENTY-ONE TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	89,578	63,275	152,853
Aggregate deaths.....	116	93	209
Representing temporary annual death rate per 1,000	15.5	17.6	16.4
<i>Causes of Death.</i>			
Typhoid fever	13	9	22
Malarial fever.....	2	5	7
Pneumonia.....	3	1	4
Consumption	8	9	17
Brain diseases.....	7	2	9
Heart diseases.....	8	4	12
Diarrhoeal diseases	19	11	30
All other diseases..	53	52	105
Accident.....	2	0	2
Violence	1	0	1
	<hr/> 116	<hr/> 93	<hr/> 209
Deaths under five years.....	43	36	79
Still-born.....	11	6	17

Mortuary Report for August, 1899.

TOWNS AND REPORTERS.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoeal Diseases.	All other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		Deaths under five years.	
	By Races.	Total.	By Races.	Total.																	By Races.	By Towns.		
Asheville	W.	8,000	13,000	10.5	...	...	...	...	...	...	...	...	1	...	3	3	...	...	...	7	13*	3	2
Dr. M. H. Fletcher.	C.	5,000		14.4	12.0	3	1	2	6	13	1	1
Charlotte	W.	17,153	26,153	20.3	23.4	5	...	...	...	...	...	3	1	2	3	15	...	...	...	29	51	14	2
Dr. F. O. Hawley.	C.	9,000		29.0	23.4	3	...	...	...	...	...	1	...	...	...	18	...	...	...	22	8	...	...
Durham	W.	4,000	6,000	15.0	12.0	...	...	...	...	...	...	...	...	...	...	5	...	...	...	5	6	1	...
Dr. Z. T. Brooks.	C.	2,000		6.0	12.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	7	...	...
Fayetteville	W.	3,500	6,000	10.3	14.0	...	...	...	...	...	...	...	...	2	...	1	...	...	...	3	7	...	...
Dr. J. V. McGougan.	C.	2,500		15.2	14.0	...	...	...	...	...	...	...	...	2	...	2	...	...	...	4	7	...	...
Greensboro	W.	6,000	10,000	12.0	20.4	2	...	...	...	...	...	1	1	...	1	1	...	...	...	6	17	1	1
J. S. Michaux, C. Ck.	C.	4,000		33.0	20.4	2	...	...	...	...	...	2	1	1	...	1	4	...	...	11	17	4	1
Henderson	W.	2,250	4,250	32.0	22.6	2	...	...	...	...	...	2	...	1	...	1	...	...	...	6	8	1	...
Dr. W. J. Judd.	C.	2,000		12.0	22.6	...	...	...	...	...	...	1	...	...	...	1	...	...	...	2	8	1	...
Hillsboro	W.	400	700	0.0	17.1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	0	1	...	...
Dr. C. D. Jones.	C.	300		40.0	17.1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	...	...
Marion	W.	800	1,200	15.0	40.0	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	4	1	...
Dr. B. A. Cheek.	C.	400		90.0	40.0	2	...	...	...	...	...	...	...	...	...	1	...	...	...	3	4	...	...
Monroe	W.	1,800	2,400	6.7	5.0	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Dr. J. M. Blair.	C.	600		0.0	5.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
Oxford	W.	1,200	2,300	30.0	20.9	...	...	...	...	...	...	...	1	2	1	...	...	...	...	3	4	1	...
Dr. S. H. Cannady.	C.	1,100		10.9	20.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	4	1	...
Raleigh	W.	11,000	20,000	12.0	10.2	...	...	...	...	...	...	1	1	...	3	6	...	...	...	11	17	5	...
T. P. Sale, Clerk B. H.	C.	9,000		8.0	10.2	...	...	...	...	...	...	...	...	...	3	3	...	...	...	6	17	6	...
Rockingham	W.	1,300	1,750	18.5	13.7	...	...	...	...	...	...	...	...	...	2	...	...	...	...	2	2	...	...
Dr. J. M. Covington.	C.	450		0.0	13.7	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...	...
Rocky Mount	W.	1,600	2,600	15.0	9.2	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	...	1
Dr. G. L. Wimberley, Jr.	C.	1,000		0.0	9.2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...	...
Salem	W.	4,100	4,550	14.6	15.8	1	...	...	...	...	...	1	...	...	3	...	...	...	...	5	6	2	2
S. E. Butner, Mayor.	C.	450		26.7	15.8	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	6	...	...
Salisbury	W.	6,000	9,000	12.0	16.0	...	...	...	...	...	...	1	1	...	3	...	1	...	...	6	12	2	...
Dr. W. W. McKenzie.	C.	3,000		24.0	16.0	...	...	...	...	...	...	1	...	...	3	2	...	...	...	6	12	3	...
Scotland Neck	W.	775	1,200	0.0	10.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
J. A. Perry, Mayor.	C.	425		28.2	10.0	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...
Tarboro	W.	2,000	3,000	6.0	8.0	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	...	...
Dr. L. L. Staton.	C.	1,000		12.0	8.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...
Washington	W.	3,500	6,000	17.1	24.0	...	...	...	...	...	...	1	1	1	...	2	...	...	...	5	12	3	...
Dr. P. A. Nicholson.	C.	2,500		33.6	24.0	1	1	...	...	...	...	...	1	...	1	3	...	...	...	7	1	...	...
Weldon	W.	700	1,450	17.1	8.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
J. T. Gooch, Mayor.	C.	750		0.0	8.3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
Wilmington	W.	11,000	26,500	18.5	14.5	...	...	...	...	...	...	1	...	1	...	15	1	...	...	17	32	7	3
Dr. W. D. McMillan.	C.	15,000		12.0	14.5	1	3	...	...	...	1	1	...	...	9	...	...	...	...	15	32	7	4
Wilson	W.	2,500	4,800	24.0	25.0	1	1	...	...	...	...	...	...	...	2	...	...	...	...	1	5	10	2
Dr. Albert Anderson.	C.	2,300		26.1	25.0	...	1	...	...	...	...	...	...	...	...	4	...	...	...	5	10	4	...

*In addition, three non-residents died of consumption, one of Bright's disease and one by suicide.

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Lenoir	
Alexander	Dr. T. F. Stevenson.	Lincoln	Dr. L. A. Crowell.
Alleghany		McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg	Dr. C. M. Strong.
Bladen	Dr. Newton Robinson.	Mitchell	Dr. C. E. Smith.
Brunswick		Montgomery	
Buncombe	Dr. E. R. Morris.	Moore	Dr. Gilbert McLeod.
Burke	Dr. J. L. Iaxton.	Nash	Dr. J. P. Battle.
Cabarrus	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell	Dr. A. F. Honck.	Northampton	Dr. H. W. Lewis.
Camden		Onslow	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico	
Catawba	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Aydtlett.
Chatham	Dr. H. T. Chapin.	Pender	Dr. George F. Lucas.
Cherokee	Dr. S. C. Heighway.	Perquimans	Dr. C. C. Winslow.
Chowan	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. W. E. Sanderson.	Pitt	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare		Rockingham	Dr. Sam Ellington.
Davidson	Dr. John Thames.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. J. W. Littleton.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. R. L. Davis.
Gates	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham		Tyrrell	
Granville	Dr. S. A. Cannady.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. W. T. & G. Cheat-
Guilford	Dr. B. W. Best.		ham.
Halifax	Dr. I. E. Green.	Wake	Dr. P. E. Hines.
Harnett	Dr. O. L. Denning.	Warren	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga	Dr. W. B. Council.
Hertford	Dr. John W. Tayloe.	Wayne	Dr. W. J. Jones.
Hyde		Wilkes	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson	Dr. E. G. Moore.
Jackson		Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough ----- Typhoid Fever -----

Measles ----- Typhus Fever -----

Diphtheria ----- Yellow Fever -----

Scarlet Fever ----- Cholera -----

Pernicious Malarial Fever ----- Smallpox -----

Hemorrhagic Malarial Fever ----- Cerebro-spinal Meningitis -----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

----- M. D.

----- 189 ----- N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
HENRY W. LEWIS, M. D., Jackson.
HENRY H. DODSON, M. D., Milton.

C. J. O'HAGAN, M. D., Greenville.
J. L. NICHOLSON, M. D., Richlands.
ALBERT ANDERSON, M. D., Wilson.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

OCTOBER, 1899.

No. 7.

The Health Conference at Wilson.

Owing to the occurrence of a meeting of another character on the date announced in our last issue, October 26th, it has been thought best to postpone the conference with the people to Wednesday, November 1st. The discussion of sanitary subjects may be a drawing card with the elect few, but with "the great unwashed," so to speak, it cannot hold a hand with other attractions. At one of our conferences we had to compete with a revival, a political speaking, a circus, and one or two other gatherings, and we have learned wisdom of experience.

We have been promised papers or talks on the following subjects:

"A Discussion of the Health Laws Now Operative, and Reasons Why They Should be Earnestly Supported by the Public," by President Thomas.

"The North Carolina Local Health Officer: How Can He be Made More Useful to the Public," by Dr. Henry W. Lewis.

"Old Age and How to Attain It," by Dr. Nicholson.

"Vaccination from the Economical Point of View," by Dr. Dodson.

"Practical Hints on Drinking Water," by Dr. Pate.

"Malaria and Mosquitoes," by the Secretary.

These, with the discussions incident thereto, together with the answers to questions from the audience, ought to make an interesting meeting.

We hope the good people of Wilson will show their appreciation of the efforts made to entertain and instruct them in subjects of vital importance to themselves by a full attendance.

Typhoid Fever and Cows.

Typhoid fever is (excluding tuberculosis) the most important of the infectious diseases. The mortality from it in the cities and towns of the State, whose vital statistics are regarded as fairly reliable, was, in 1897, 83 of the 2,085 deaths

from all causes, or almost exactly one in twenty-five, while the total number of deaths from diphtheria, scarlet fever, measles and mumps combined was 63. In 1898 the deaths from typhoid fever were 94 out of a total of 2,419, or one in less than twenty-six, and from the four diseases enumerated twenty-four. When we take into consideration the amount of illness to be credited to it in those who recover in addition to its fatality, that it occurs in all sections, and that it is a preventable disease, its importance to the sanitarian and the public is manifest. We therefore take pleasure in printing the following communication from Dr. Strong, Superintendent of Health of Mecklenburg County, and, in compliance with his request, in commenting on it to the best of our ability:

DR. STRONG'S LETTER.

CHARLOTTE, N. C., Oct. 4, 1899.

DOCTOR:—I send you a statement of the probable cause of cases of typhoid fever which might be of interest to the readers of THE BULLETIN.

Thompson Orphanage, a commendable institution of the Episcopal Church, is situated on a stream one-half mile east of the city limits. It has been remarkably healthy up to June, 1899, when a case of typhoid fever developed. They were then using well water. The danger of this kind of water being pointed out to them they immediately connected with the city main and since have been using city water. Their system of drainage carries the sewerage to this creek and empties near the pasture where the Orphanage cows are grazed. Since June two cows have emaciated and had diarrhoea and died without finding out their disease. The milk of these cows was used until their condition was noted,

and in September four cases of typhoid developed. Thorough disinfection of premises was used after the case in June and the sewer is properly trapped. Could it be possible that these cows had typhoid fever and transmitted it through their milk? Or could a cow transmit the germ through the secretion of milk without the cow having the disease? Or could they transmit it by their udders?

If typhoid fever can be transmitted by the ways suggested, how important it would be to watch our cows and pasturage. I would state incidentally that the sewerage will be changed into the city main, also the pasturage.

I would like this discussed through the next issue of THE BULLETIN, because of its general interest to the public. Or if you think best not to use it through its columns a private opinion could be given and appreciated.

Yours, C. M. STRONG,
Co. Supt. Health, Charlotte, N. C.

It has been demonstrated time and again that the germs of typhoid fever are sometimes transmitted to the human system through the medium of cow's milk. That fact is settled. But the facts, as we understand them, do not justify the belief that cows have typhoid fever themselves, or that they can carry the bacillus through their circulation and their milk-making machinery into the milk delivered at the pail. In most cases when the disease has been traced to the milk supply it has been found that the milk was contaminated by infected water used for deliberately watering the milk or washing the cans. Parkes says that it may possibly be caused by the absorption of the effluvia of enteric fever, but in the light of recent experience in our military camps leading to

the belief that the germs were conveyed through the food which had been infected by flies who divided their time between the privy pits and the kitchens, it seems to us that a fly in the milk would be the more likely cause when there was nothing to fall back on more probable than absorption of effluvia. Milk may be infected by the soiled hands of a milker who has a walking case. In investigating an outbreak of the disease last year we came to the conclusion, after carefully weighing all the facts, that the germs were introduced into the milk supply in this way.

Again, it is well known that cows are very fond in summer of standing in pools of water, and if the pools be infected some of the bacilli would almost surely be carried out on the udder and tail, when they might easily be introduced into the milk. Every one familiar with milking knows that the cow in her constant switching at the flies not infrequently gets the tip of her tail into the pail. If the cows were a link in the chain of transmission to the cases at the Thompson Orphanage, it was most likely in this way. But in the light of fuller information, we consider this extremely improbable.

Very soon after the receipt of Dr. Strong's letter we had the good fortune to meet Rev. Mr. Osborne, who was Superintendent of the Orphanage for ten years—from its establishment to his appointment as Chaplain of the Second N. C. Volunteers in the late war with Spain, and we immediately proceeded to ascertain from him exactly how "the land (and water) lay" about the institution. He stated that during his entire incumbency there was not a single case of typhoid fever nor a single death from any cause among the inmates (a remark-

able record, by the way); that the stream referred to for the first eight years received not only the sewerage of the Orphanage but also of the eastern part of the city of Charlotte; that it was very crooked, with numerous pools in its course, and was in consequence very subject to overflow; that the land bordering on it was at that time used as a pasture; that after eight years the Charlotte sewerage was changed to another outlet and the course of the stream straightened, thereby doing away with the pools and minimizing the liability to overflow. In the light of this statement it seems to us that if the cows were ever to gather typhoid fever germs from that stream they ought to have done it before.

It should be noted that Dr. Strong says that after the first case in June, which drank the well water, attention was called to its dangers, and that thereafter the city water was used. Something like two months subsequent to this change in the drinking water four more cases occurred. This fact, taken in connection with the further fact that typhoid fever has been more than usually prevalent in Charlotte this season, suggests the thought that the public water supply may not have been immaculate, although it should be said that analyses, both chemical and bacteriological, which the city authorities, in obedience to the act of the last Legislature requiring such analyses to be made by all water companies quarterly, had made in September, showed it at the time to be good. What the origin of the fever was we are not in a position to say, not having made a personal inspection, but in our opinion it was not transmitted through the systems of the cows to their milk. As to the nature of the disease, characterized by emaciation and diarrhoea, of which two died, we think it

much more likely to have been tuberculosis than typhoid, and we would suggest the advisability of applying the tuberculin test to the remainder of the herd. We would also suggest that water containing sewerage is not fit for milk cows—or any other animals.

NOTE.—In the conversation with Mr. Osborne referred to, he made a very interesting statement bearing on the relationship of mosquitoes to malaria. He said that chills had occurred among the children only occasionally up to the opening of a brick-yard in the creek bottom 150 yards from the orphanage buildings, and 75 from the house of the foreman of the farm, which is located on the flat next the creek. Upon careful inquiry he learned that not a case of malarial disease had occurred among the occupants of the latter house in certainly 18 years prior to the establishment of the brick-yard, although the creek frequently overflowed, the water often covering both front and backyards, being two or three feet deep under the house. The overflow filled the clay-pits with water, the mosquitoes were unusually bad that fall, and there was an epidemic of malarial troubles among the orphans and in the foreman's family. It will be noted that the recently filled clay-pits, containing few, if any, fish to eat the eggs and larvæ, furnished the ideal conditions for breeding mosquitoes.

Because mosquitoes and chills happened to abound at the same time, does not prove that the one caused the other, but in the light of recent investigations there seems to be very little doubt of it.

Review of Diseases for September, 1899.

SEVENTY-EIGHT COUNTIES REPORTING.

Eighty-five counties have Superintendents of Health.

Except in the case of the more contagi-

ous and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of September the following diseases have been reported from the counties named :

MEASLES.—Harnett, few cases; Wilkes.

WHOOPIING-COUGH.—Ashe, 22; Chowan, 3; Cleveland; Craven, 7; Currituck, 4; Granville, 6 to 8; Greene, 2; Pitt, in all parts; Rockingham; Rutherford, a few; Warren, a few—11 counties.

SCARLET FEVER.—Craven, 1; Durham, 1; Forsyth, 3; Iredell, 1; Mecklenburg, 1.

DIPHTHERIA.—Cabarrus, 1; Chowan, 3; Guilford, 1; Henderson, 1; Iredell, several; Macon, 1; Mitchell, 4; New Hanover, 2; Rockingham; Rowan, 2; Wake, 4; Wilkes 1—12 counties.

TYPHOID FEVER.—Alamance, 10; Ashe, 3; Burke, 6; Cabarrus, 12; Catawba, 3; Chatham; Chowan, 7; Clay, 1; Cleveland; Craven, 8; Cumberland, 8; Davidson, 8; Forsyth, in all parts; Franklin; Gaston; Greene, 5; Guilford, 4; Harnett, many; Haywood, 7; Henderson, 6; Iredell; Jones, 1; McDowell; Macon, 1; Martin, 4; Mecklenburg; Mitchell, 25 cases in northeast section, but only one death reported; Moore, 7; New Hanover, 4, Northampton; Onslow, 1; Orange, 2; Pasquotank, 1; Pender, 1; Perquimans, 6; Polk; Richmond; Robeson; Rockingham; Rowan, 12; Rutherford, a few; Sampson, a few; Stanly; Stokes, 3; Surry, 3; Union, 8; Wake, 2; Warren, a few; Washington, 1; Watauga, 2; Wilkes; Wilson, a few; Yadkin, 6; Yancey, 7—54 counties.

MALARIAL FEVER.—Alamance, in all parts; Beaufort; Bertie, in all parts; Bladen; Cabarrus, in all parts; Caswell, in all parts; Chatham; Chowan, Columbus, Craven, Currituck, Davidson, in all parts; Franklin; Gaston; Granville, Greene, Guilford, in all parts; Harnett, a few; Iredell; Jones; Martin, Mecklenburg, in all parts; Moore; New Hanover; Northampton, in all parts; Onslow; Orange, Perquimans, in all parts; Person; Richmond; Robeson; Rockingham; Rowan, in all parts; Sampson; Union; Vance; Washington, in all parts; Wayne; Wilson, in all parts—39 counties.

MALARIAL FEVER, PERNICIOUS.—Beaufort, 2; Martin, 2; Union.

MALARIAL FEVER, HEMORRHAGIC.—Beaufort, 1; Craven, 1; Greene, 1; Martin, 2; Mecklenburg, 1; Northampton, 5; Onslow, 1; Perquimans, 2; Wilson 1—9 counties.

HYDROPHOBIA.—Buncombe, 1.

DIARRHŒAL DISEASES.—Currituck, in all parts; Sampson; Swain.

INFLUENZA.—Macon; Stokes, in all parts.

MUMPS.—Pitt, in all parts.

SMALL-POX.—Bertie, 3; Halifax, *3; Rowan, 9.

CHOLERA, IN HOGS.—Columbus.

PINK EYE, IN HORSES.—Washington.

No diseases are reported from Alex-

ander, Carteret, Davie, Edgecombe, Johnston, Madison and Transylvania.

No reports have been received from Alleghany, Anson, Caldwell, Cherokee, Duplin, Hertford and Nash.

Summary of Mortuary Reports for September, 1899.

(TWENTY-ONE TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	91,601	64,099	155,700
Aggregate deaths...	107	110	217
Representing temporary annual death rate per 1,000	14.0	20.6	16.7
<i>Causes of Death.</i>			
Typhoid fever	6	6	12
Malarial fever.....	7	6	13
Diphtheria	1	0	1
Whooping-cough...	0	1	1
Pneumonia.....	2	1	3
Consumption	8	7	15
Brain diseases.....	8	5	13
Heart diseases.....	6	7	13
Neurotic diseases...	1	1	2
Diarrhœal diseases	15	13	28
All other diseases..	51	55	107
Accident.....	2	8	10
	107	110	217
Deaths under five years.....	38	45	83
Still-born.....	12	17	29

Mortuary Report for September, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.																TOTAL DEATHS.					
		By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	Deaths under five years.	Still-born.
Asheville	W.	8,000	13,000	15.0	18.5	1	...	...	...	...	...	...	1	1	...	1	1	5	...	...	...	10	20	6	2
Dr. M. H. Fletcher.	C.	5,000		24.0		1	1	...	2	5	1	10	5	12	...
Charlotte	W.	19,176	29,000	16.9	18.3	1	...	...	...	...	...	...	2	2	1	5	16	1	...	...	...	28	47	13	1
Dr. F. O. Hawley.	C.	9,824		23.3		...	...	1	...	...	...	...	...	1	3	...	2	10	2	...	...	...	19	8	...	...
Durham	W.	4,000	6,000	27.0	20.0	...	...	3	...	...	...	...	...	...	1	...	1	4	...	...	...	9	10	3	...
Dr. Z. T. Brooks.	C.	2,000		6.0		1	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...
Fayetteville	W.	3,500	6,000	6.8	16.0	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	2	8	...	...
Dr. J. V. McGougan.	C.	2,500		28.8		...	...	...	...	1	...	...	...	...	1	...	1	1	1	...	...	...	6	...	3	2
Greensboro	W.	6,000	10,000	16.0	22.8	1	...	1	...	...	...	...	2	1	...	...	2	1	...	...	...	8	19	3	...
J. S. Michaux, C. Ck.	C.	4,000		33.0		2	...	1	...	...	...	...	...	1	1	...	1	...	5	...	...	...	11	4	1	...
Henderson	W.	2,250	4,250	5.3	16.9	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	6	...	...
Dr. W. J. Judd.	C.	2,000		30.0		...	...	...	...	...	...	...	...	1	1	...	...	3	...	...	...	...	5	...	4	1
Hillsboro	W.	400	700	60.0	34.3	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	2	2	...	...
Dr. C. D. Jones.	C.	300		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Marion	W.	800	1,200	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. B. A. Cheek.	C.	400		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Monroe	W.	1,800	2,400	6.7	15.0	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	3	...	...
Dr. J. M. Blair.	C.	600		40.0		...	...	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	...	...	...
Oxford	W.	1,200	2,300	10.0	10.4	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	2	...	...
Dr. S. H. Cannady.	C.	1,100		10.9		...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	1
Raleigh	W.	11,000	20,000	13.0	12.6	1	...	1	...	...	...	...	1	1	1	3	4	...	...	...	12	21	6	...	
T. P. Sale, Clerk B. H.	C.	9,000		12.0		...	...	...	...	...	...	...	...	2	...	...	4	3	...	...	...	...	9	8	4	...
Rockingham	W.	1,300	1,750	0.0	6.8	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	0	1	...	...
Dr. J. M. Covington.	C.	450		26.7		...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...
Rocky Mount	W.	1,600	2,600	7.5	13.8	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	3	...	1
Dr. G. L. Wimberley, Jr.	C.	1,000		24.0		...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	2	...	...	...
Salem	W.	4,100	4,550	5.8	5.3	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	2	2	...	1
S. E. Butler, Mayor.	C.	450		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Salisbury	W.	6,000	9,000	10.0	9.3	1	...	...	...	...	...	...	1	...	...	2	1	...	...	...	5	7	2	...	
Dr. W. W. McKenzie.	C.	3,000		8.0		...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	2	2	...	...
Scotland Neck	W.	775	1,200	15.5	20.0	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	...	...
J. A. Perry, Mayor.	C.	425		28.2		1	2	1
Tarboro	W.	2,000	3,000	18.0	16.0	...	...	...	...	...	...	...	...	...	1	...	2	...	...	...	...	3	...	...	...
Dr. L. L. Staton.	C.	1,000		12.0		...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	4	...	...
Washington	W.	3,500	6,000	20.6	30.0	...	...	...	...	...	...	...	2	1	...	...	5	...	...	...	...	6	15	...	...
Dr. P. A. Nicholson.	C.	2,500		43.2		...	...	...	...	...	...	...	...	...	...	...	...	1	6	...	...	...	9	...	2	...
Weldon	W.	700	1,450	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
J. T. Gooch, Mayor.	C.	750		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Wilmington	W.	11,000	26,500	14.2	16.8	...	2	...	...	...	...	1	...	1	...	9	...	...	...	...	13	37	3	7	
Dr. W. D. McMillan.	C.	15,500		18.6		2	...	...	...	...	...	...	1	...	...	...	...	17	2	...	...	...	24	...	7	6
Wilson	W.	2,500	4,800	9.6	20.0	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	6	8	...	...
Dr. Albert Anderson.	C.	2,300		31.3		1	...	1	...	...	...	...	...	1	...	1	...	2	...	...	...	...	...	...	...	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

* In addition four non-residents died of Consumption.

County Superintendents of Health.

Alamance.....	Dr. T. S. Faucette.	Lenoir	
Alexander	Dr. T. F. Stevenson.	Lincoln	
Alleghany	Dr. B. E. Waddell.	McDowell.....	Dr. B. A. Cheek.
Anson.....	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe.....	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin.....	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg.....	Dr. C. M. Strong.
Bladen.....	Dr. Newton Robinson.	Mitchell.	Dr. C. E. Smith.
Brunswick		Montgomery	
Buncombe.....	Dr. E. R. Morris.	Moore.....	Dr. Gilbert McLeod.
Burke.....	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus.....	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell.....	Dr. A. F. Houck.	Northampton.....	Dr. H. W. Lewis.
Camden		Onslow.....	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange.....	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico.....	
Catawba.....	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Aydtlett.
Chatham.....	Dr. H. T. Chapin.	Pender.....	Dr. George F. Lucas.
Cherokee.....	Dr. S. C. Heighway.	Perquimans	Dr. C. C. Winslow.
Chowan.....	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. W. E. Sanderson.	Pitt.....	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven.....	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland.....	Dr. J. Vance McGougan.	Richmond.....	Dr. J. M. Covington.
Currituck.....	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare		Rockingham	Dr. Sam Ellington.
Davidson.....	Dr. John Thames.	Rowan.....	Dr. W. L. Crump.
Davie.....	Dr. James McGuire.	Rutherford.....	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham.....	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. J. W. Littleton.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
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Granville.....	Dr. S. H. Cannady.	Union.....	Dr. J. E. Ashcraft.
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Hertford	Dr. John W. Tayloe.	Wayne.....	Dr. W. J. Jones.
Hyde		Wilkes.....	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson.....	Dr. E. G. Moore.
Jackson.....		Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones.....	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough Typhoid Fever

Measles Typhus Fever

Diphtheria Yellow Fever

Scarlet Fever Cholera

Pernicious Malarial Fever Smallpox

Hemorrhagic Malarial Fever Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

.....

Has any epidemic occurred among domestic animals? If so, what?

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What is the sanitary condition of your section, public and private?

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General Remarks:

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..... M. D.

..... 189 N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

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A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

NOVEMBER, 1899.

No. 8.

Typhoid Fever at the State Normal and Industrial College.

It is with deep regret that we note the outbreak of typhoid fever at the State Normal and Industrial College for Women at Greensboro on such a large scale as to cause the suspension of the school. We believe this institution to be one of the greatest powers for good in North Carolina, and the present condition of affairs can only be regarded as a public calamity.

About three weeks ago cases of sickness began to occur which were supposed to be malarial fever. They became so numerous, however, that President McIver asked for an inspection and advice from the Board. The committee already appointed by the President of the Board to inspect, in regular course, the State institutions at Greensboro, the Normal and Industrial College and the A. and M. College for the colored race, composed of Dr. Dodson and Colonel Shaffer, were promptly notified by wire, and in person and with equal promptness responded. They have

not yet made their report, and, indeed, cannot do so until the report of the bacteriologist on the water supply is received. The only thing discovered by them in their personal inspection of the premises was a leaking soil-pipe from ten water-closets in the main dormitory, which had saturated the soil in the basement under the butler's pantry, and within eighteen inches of an opening in the wall of the butter room. This leak was located and remedied just before their arrival. In the absence of other apparent cause this was generally regarded as the probable origin, but no opinion can be given, of course, until we hear from the bacteriologist, as infected drinking water is so much more likely to be the cause in an immense majority of cases of typhoid fever.

It should be said, in justice to the city of Greensboro, that the cause, whatever it may prove to be, seems to have been strictly local, as students boarding outside have not been affected, the sickness being confined to those sleeping and eating in the buildings.

According to our latest information there

have been about one hundred cases of sickness, with three deaths, but while some are convalescent, there are very many still sick, and the final result cannot yet be foretold.

We sympathize most sincerely with the stricken young ladies and their parents and friends, but with none more than with the devoted president of the College, Dr. McIver, who, we verily believe, carries them all on his heart. But, as we understand it, no blame whatever can be attached to him, or the management, and we feel confident that by the re-opening of the college on January 2, 1900, everything will be in better shape than ever before, and that the students can return with perfect safety.

"Great epidemics are great reformers," it has been said, and while this outbreak cannot be classed in that category exactly, it is such from the point of view of the College. We have deplored in these columns for years the discouraging indifference of our people to the importance of sanitation. But they are being taught. The smallpox epidemic of last winter and spring, mild as the disease generally was, has made a decided impression on the public mind, and this striking and tragic object-lesson in an institution having representatives from every county in the State save one, we believe, will spread and deepen still more this impression. As the ultimate consequence of this present affliction we believe it not unreasonable to assert that hundreds of lives will be saved in our State. It has prepared the ground, and seed sown on good ground can be counted on to bring forth some thirty, some sixty, and some an hundredfold.

In this connection we think it opportune to call the attention of the people (we hope the newspapers of the State will aid us in giving it publicity) to a provision of the act of 1893, that, we regret to say, has been almost invariably honored in the breach

rather than the observance by the parties interested—so far as the State Board of Health is concerned, at any rate, though the advice of local boards may have been sought. It is section 19, chapter 214, Laws of 1893, and reads as follows:

"SECTION 19. The said board shall from time to time consult with and advise the boards of directors of all State institutions, the authorities of cities and towns, corporations or firms already having or intending to introduce systems of water supply, drainage or sewerage, as to the most appropriate source of supply, the best practicable method of assuring the purity thereof, or of disposing of their drainage or sewage, having regard to the present and prospective needs and interests of other cities, towns, corporations or firms which may be affected thereby. All such boards of directors, authorities, corporations and firms are hereby required to give notice to said board of their intentions in the premises and to submit for its advice outlines of their proposed plans or schemes in relation to water-supply and disposal of sewage, and no contract shall be entered into by any State institution, city or town for the introduction of a system of water-supply or sewage disposal until said advice shall have been received and considered: *Provided, however,* that any city or town having a regularly organized board of health may seek advice therefrom or from its County Board of Health in lieu of that of the State Board.

Since the above was written we have spent several days at the college and a full report will appear in our next issue. Suffice it to say, for the present, that the first cases, to the extent of about sixty per cent. of the whole number, were undoubtedly malarial fever, all recovering in from four to ten days under quinine; that the total number of deaths to December 1st is seven;

and that two of the wells used for drinking purposes, including the central well used by all the students, have been found by the bacteriologist to be infected.

The Health Conference at Wilson.

In accordance with the announcement in our last issue, the annual health conference was held by the Board with the good people of the thriving and progressive town of Wilson on Wednesday, November 1st. Notwithstanding the postponement of the conference from the date first selected, in order to avoid conflicting with a religious assemblage, we did not succeed in escaping a rival attraction in the shape of a minstrel show. Whether it was attributable to the fascinations of the burnt-cork performers or not we cannot tell, but we must confess to some disappointment in the size of the audience at night when, the business men of the town being at leisure, we hoped for a large attendance. But after all it was very respectable in numbers and excellent in quality, and showed a gratifying interest in the proceedings. At the morning session we were pleased to note the attendance in a body of the young ladies of the Kinsey Seminary, which was in keeping with the progressive spirit shown in the management of that excellent institution.

The following programme, supplemented by inter-current discussions of various sanitary subjects, was carried out:

Old Age and How to Attain It—By Dr. J. L. Nicholson, Richlands, member of the Board.

Vaccination as an Economic Measure.—By Dr. Henry H. Dodson, Milton, member of the Board.

Malaria and Mosquitoes.—By Dr. Richard H. Lewis, Raleigh, Secretary of the Board.

A Discussion of the Health Laws now Opera-

tive and Reasons why they should be Earnestly Supported by the Public.—By Dr. George G. Thomas, Wilmington, President of the Board.

The North Carolina Health Law and the Local Health Officer.—By Dr. Henry W. Lewis, Jackson, member of the Board.

Practical Hints on Drinking Water.—By Dr. W. T. Pate, Gibson, one of the Bacteriologists to the Board.

The papers were excellent, and we do not remember to have had better at any previous conference.

In the afternoon, through the courtesy of the resident member of the Board, Dr. Albert Anderson, and of the Hon. F. A. Woodard, we were given a very delightful drive, in the course of which we made an inspection, somewhat cursory it is true, of a lowlying district to the southwest of the town and of the water-works, which included the pump-house, the intake and a part of the water-shed. Wilson, we are pleased to note, owns its water-works, and according to the report of our Engineer, after a careful inspection previously made, has an excellent supply—if properly looked after and cared for. The most beneficent result of this municipal ownership is the low price—ten cents per 1,000 gallons—at which water is furnished the people.

At a meeting of the Board in private session, all the members being present except one detained by sickness and another by affliction in his family, considerable business was transacted. The most important subjects considered were: The smallpox outlook for the coming winter; the failure on the part of certain boards of county commissioners to elect a snpe intendent of health; and the ignoring by several water companies supplying surface water of that portion of the "Act to Protect Water Supplies," requiring chemical and bacteriologi-

cal analyses quarterly. As a result of the discussion of these subjects the Secretary was instructed as follows:

To write to every county commissioner in the State individually, urging upon those in counties having no superintendent of health the immediate election of one, and upon all the great importance of making preparation for outbreaks of smallpox which are anticipated on account of the innumerable *faci* of infection in contiguous parts of Virginia and one or two of our northeastern counties, resulting from neglect of sanitary precautions, especially disinfection, in the epidemic of last winter and spring.

To write to the judge holding the nearest court in the counties where there are no superintendents, calling his attention to the anticipated dangers from smallpox, and asking him to charge the grand juries on the failure of the boards of commissioners to elect a superintendent. The law is mandatory in this matter, and such boards are, in the opinion of the Attorney-General, guilty of a misdemeanor, punishable by a fine of \$200.

To publish in the BULLETIN the names of such water companies as fail to comply with the requirements of the "Act to Protect Water Supplies," with comments; if they continue to refuse, to send copies of said BULLETIN to a number of leading citizens of the town, and if they still refuse, to have the water analyzed by the State Chemist and the bacteriologists of the Board and publish the results.

The Board felt that its duty to the people, for whose protection it was created, required this action on their part. They certainly do not wish to get any county commissioner into trouble, nor do they desire to injure the business of any water companies, for they believe in public supplies, but there is no excuse for neglect by either of the parties mentioned of such simple and entirely

reasonable, but very important, duties. We hope they will all do their duty in these matters promptly.

Vaccination as an Economic Measure.

It has been said, by some cynic, let us hope, that the shortest road to the hearts of most people is through the "pocket nerve." Reluctantly admitting the truth contained in this assertion, we gladly avail ourselves of the opportunity to print the valuable paper by Dr. Dodson, showing in a striking manner by actual experience the value to the public of vaccination in dollars and cents:

VACCINATION AS AN ECONOMIC MEASURE.

(Read at the Wilson Health Conference).

BY HENRY H. DODSON, M. D., MILTON, N. C.

I desire to discuss with you a subject of which you have heard very much in the past few months—smallpox and the means of prevention.

Smallpox has been in many parts of the country for more than a year and is now and will continue to be until a more effective remedy is used.

What does smallpox do in a community? Leaving out the question of its being a dread epidemic and a loathsome disease, that is the illness *per se*, it interrupts business and trade, it closes your schools, public and private, and it has interfered with the courts, causing their postponement, thus entailing an additional expense on the county by detention of criminals in the jails, and it even closes your churches.

In some country districts, and, in several instances in my knowledge, farming operations were stopped. It interferes with everything.

You are a branded community—cut off and quarantined from the outside world.

Therefore, smallpox is an enemy to life, health, trade, agriculture, education, law, religion and society in general.

What is the effective remedy? Not general quarantine and hospitals and pest houses, but *vaccination*. Of this you have heard a great deal, and I do not care to discuss with you vaccination as the greatest and most beneficent discovery of any age, preventing with absolute certainty, as it does, this dread disease, and saving thousands of lives, for this is a settled fact. But I wish to present vaccination in a new phase—as an economic measure; how a city, community, the tax payers, can save money.

I can explain to you in a few words by a most striking illustration, a case in point. In February of this year a man came to Pittsylvania county, Virginia (about three-quarters of a mile from Milton, the town in which I live), from Newport News, and in a few days broke out with genuine smallpox. The entire family of six or seven children contracted the disease. The parents had been vaccinated, and escaped. The authorities took no notice, saying it was chickenpox. The neighbors all came in to see this interesting case of chickenpox, and this was not enough, but they had a grand wedding in the family, and many guests were invited. Then they had CHICKENPOX a plenty! On one farm I saw twenty-three cases of smallpox, and all farming operations stopped. At one time they had only two hands to carry on the work of the farm at a very busy season, entailing great loss to the owner of the land. Still no vaccination except what I myself did privately. One very reliable man told me that he lost five hundred dollars by his inability to send around his thrasher to thresh the wheat for the people.

This state of affairs continued until about June or July when, from this focus of in-

fection, the disease got into the city of Danville, about ten miles away. Then, and not until then, did the county authorities begin to take notice of it and use means to stop it. What did they do? Use this great economic measure? No. They built a pest-house, employed physicians, guards, nurses and isolated the sick—all necessary when smallpox comes, but expensive. Suppressing the smallpox has cost this one township in Pittsylvania county, Virginia, more than three thousand dollars. The people could have been vaccinated for six hundred dollars, giving them protection for a number of years, whereas they have since had other cases of smallpox from a new focus and may continue to have them until they use the proper preventive—vaccination.

Not only the township but a rich country may be bankrupt if this continues. Realizing our own danger from the first, not only for my town, which is immediately on the Pittsylvania line and only three quarters of a mile from these first cases, but for the county of Caswell, which is contiguous to Pittsylvania for several miles, I brought the matter to the notice of our town council and the people were vaccinated.

Notwithstanding the smallpox has been at our doors for months, we have had no case of smallpox in the town of Milton for thirty-three years.

I also presented the danger to the county commissioners and vaccinated all persons along the Pittsylvania line, and it has borne fruits, as I will show. The result was, that notwithstanding the people were side by side, we only had six cases of smallpox, and they infected before the general vaccination—all with the appalling cost of not more than one hundred dollars.

What is more convincing than these practical facts and plain figures? It is your duty—the people's—to take advantage of this cheap and innocent preventive of small-

pox. It is the duty of the authorities of every town and the commissioners of every county in the State, they being the guardians of the people's moneys, to give to the people this economic and only preventive against smallpox. The time will come when the intelligence of a community will not be judged alone by the number of schools and churches, by education and morals, but also by their promptness in taking advantage of preventive medicine and pre eminently—vaccination.

Death of Doctor Councill.

It is with sincere regret that we chronicle the death of Dr. W. B. Councill, Superintendent of Health of Watauga county. Dr. Councill was a gentleman of high standing as a man and the leading physician in his community for many years. His death is a distinct loss to his county and State.

Review of Diseases for October, 1899.

(SEVENTY SIX COUNTIES REPORTING.)

Eighty-five counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of October the following diseases have been reported from the counties named:

MEASLES.—Ashe, 2; Granville, in nearly all parts; Harnett, a few cases; Pitt, epidemic; Wilson, 3.

WHOOPING COUGH.—Ashe, 8; Cabarrus, 1; Cleveland; Craven, 14; Granville, in nearly all parts; Jackson, 10; Martin, 4; Mecklenburg; Pitt, epidemic; Stanly; Warren, a few; Wayne, 20; Wilson, 2—13 counties.

SCARLET FEVER.—Cumberland, 4; Iredell, 2; Mecklenburg, 3; New Hanover, 1; Wilson, 1.

DIPHTHERIA —Alamance, 4; Cabarrus, 1; Caldwell, 2; Craven, 3; Jackson, 6; Jones, 2; Macon, 1; Mitchell, 8; New Hanover, 1; Perquimans, 1; Pitt, 1; Robeson; Rockingham; Warren, 3—14 counties.

TYPHOID FEVER.—Alamance, 7; Ashe, 5; Cabarrus, 12; Caldwell, 10; Catawba, 2; Chatham; Chowan, 3; Cleveland, a few; Columbus, 6; Craven, 4; Cumberland, 4; Edgecombe, 2; Franklin; Gaston, several; Granville, a few; Greene, 4; Guilford, 6; Harnett, many; Haywood, 5; Henderson, 2; Iredell, several; Jackson, 4; Jones, 4; McDowell; Macon, 1; Madison, 3; Martin, 4; Mecklenburg; Mitchell, many; Moore, 10; Nash, 6; Northampton; Onslow, 1; Orange, 4; Pender, 2; Perquimans, 3; Person, 5; Pitt, in all parts; Robeson; Rockingham; Sampson, many; Stanly; Stokes, 2; Swain, 3; Transylvania, 3; Union, 10; Wake, 3; Warren, a few; Wayne, 10; Wilkes; Wilson, 20; Yancey, 20—52 counties.

MALARIAL FEVER.—Alamance, in all parts; Beaufort; Bertie; Caswell, Chowan, in all parts; Columbus; Craven, Cumberland, Currituck, in all parts; Davie; Franklin, in all parts; Gaston; Gates; Green; Guilford; Harnett, a few; Iredell, in all parts; Martin; Mecklenburg; Nash; New Hanover, in all parts; Northampton; Perquimans; Person; Pitt, in all parts; Randolph; Richmond; Robeson; Sampson, in nearly all parts; Stanly; Transylvania;

Union; Wake; Wilson; Yadkin, a few cases—35 counties.

MALARIAL FEVER, PERNICIOUS.—Beaufort, several cases; Gates, 1; Guilford, 1; Pitt, many; Union, 15; Wilson, 3—6 counties.

MALARIAL FEVER, HEMORRHAGIC.—Beaufort, 4; Franklin, 1; Martin, 4; Nash, 3; New Hanover, 1; Northampton, 5; Perquimans, 5; Pitt, many; Wilson, 34—9 counties.

CEREBRO SPINAL MENINGITIS.—Ashe, 1.

INFLUENZA.—McDowell; Rockingham; Sampson.

MUMPS.—Henderson.

SMALLPOX.—Chatham, 9, in one family, colored; Person, 4; Vance, 1.

CHOLERA, IN HOGS.—Columbus; Northampton.

No diseases are reported from Alexander, Bladen, Buncombe, Carteret, Davidson, Forsyth, Halifax, Johnston, Pasquotank, Polk, Rutherford, Surry and Washington.

No reports have been received from Alleghany, Anson, Burke, Cherokee, Clay, Duplin, Durham, Hertford and Rowan.

Summary of Mortuary Reports for October, 1899.

(TWENTY TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	87,351	59,549	146,900
Aggregate deaths...	76	110	186
Representing temporary annual death rate per 1,000	10.4	22.2	15.2
<i>Causes of Death.</i>			
Typhoid fever	2	6	8
Malarial fever.....	3	5	8
Pneumonia.....	2	2	4
Consumption	14	10	24
Brain diseases.....	2	2	4
Heart diseases.....	4	6	10
Neurotic diseases...	0	1	1
Diarrhœal diseases	7	13	20
All other diseases..	38	63	101
Accident.....	3	2	5
Suicide.....	1	0	1
	76	110	186
Deaths under five years.....	25	28	53
Still-born.....	7	10	17

Mortuary Report for October, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.																TOTAL DEATHS.		Deaths under five years. Still-born.				
		By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhœal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.		By Races.	By Towns.		
Asheville	W.	8,000	13,000	6.0	8.3	...	...	...	...	...	...	...	...	...	...	...	1	3	...	...	...	4	5	2	1
Dr. M. H. Fletcher.	C.	5,000		12.0		1	...	1	3	5	9	4	1
Charlotte	W.	19,176	29,000	6.2	13.6	...	...	...	...	...	...	1	2	...	...	...	1	5	...	...	...	10	33	6	4
Dr. F. O. Hawley.	C.	9,824		28.1		2	1	...	1	...	5	13
Fayetteville	W.	3,500	6,000	6.8	12.0	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	2	6	3	1
Dr. J. V. McGougan.	C.	2,500		19.2	
Greensboro	W.	6,000	10,000	8.0	16.8	...	...	1	...	...	...	...	1	...	...	...	...	2	...	...	...	4	3	3	1
J. S. Michaux, C. Ck.	C.	4,000		30.0		1	1	1	1	1	5	10	14	5	1
Henderson	W.	2,250	4,250	16.0	16.9	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	3	6	2	1
Dr. W. J. Judd.	C.	2,000		18.0		2	1
Hillsboro	W.	400	700	30.0	17.1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Dr. C. D. Jones.	C.	300		0.0		1	0	1	...
Lenoir	W.	1,250	1,500	9.6	8.0	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	1	...	...
Dr. Albert Houck.	C.	250		0.0		0	1	...
Marion	W.	800	1,200	15.0	10.0	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Dr. B. A. Cheek.	C.	400		0.0		0	1	...
Monroe	W.	1,800	2,400	13.3	15.0	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	3	...	...
Dr. J. M. Blair.	C.	600		20.0		1	1	3	...
Oxford	W.	1,200	2,300	10.0	10.4	1	1	2
Dr. S. H. Cannady.	C.	1,100		10.9		1
Raleigh	W.	11,000	20,000	19.6	19.2	1	...	...	...	...	...	1	6	...	2	...	1	7	...	...	...	18	32	3	1
T. P. Sale, Clerk B. H.	C.	9,000		18.4		1	3	1	2	...	7	14	2	3	...
Rockingham	W.	1,300	1,750	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. J. M. Covington.	C.	450		0.0		0	0	...
Rocky Mount	W.	1,600	2,600	30.0	23.1	...	...	...	...	...	...	...	1	1	...	...	1	1	...	...	...	4	5	...	...
Dr. G. L. Wimberley, Jr.	C.	1,000		12.0		1	5	...
Salem	W.	4,100	4,550	14.6	13.2	...	...	...	...	...	...	...	1	...	...	...	...	4	...	...	...	5	5	...	1
S. E. Butner, Mayor.	C.	450		0.0		0	5	...
Salisbury	W.	6,900	9,000	6.0	8.0	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	...	3	6	1	...
Dr. W. W. McKenzie.	C.	3,000		12.0		1	2	3	2	...
Scotland Neck	W.	775	1,200	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
J. A. Perry, Mayor.	C.	425		0.0		0	0	...
Tarboro	W.	2,000	3,000	6.0	8.0	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	2	...	...
Dr. L. L. Staton.	C.	1,000		12.0		1	1	2
Washington	W.	3,500	6,000	10.3	18.0	...	...	...	...	...	...	...	1	...	...	2	...	...	...	...	...	3	9	2	...
Dr. P. A. Nicholson.	C.	2,500		28.8		...	1	1	2	2	6	3	...
Weldon	W.	700	1,450	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
J. T. Gooch, Mayor.	C.	750		0.0		0	0
Wilmington	W.	12,000	27,500	13.0	22.7	...	...	...	...	...	...	...	1	...	1	...	9	1	1	...	...	13	6	...	...
Dr. W. D. McMillan.	C.	15,500		30.4		2	3	4	3	25	1	38	51	10	5
†Wilson.....	W.	2,500	4,800	14.4		...	...	...	...	...	...	...	1	1	...	...	1	...	...	...	...	3	1	...	...
Dr. Albert Anderson.	C.	2,300	

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

* In addition five non-residents died of Consumption.

† No report as to deaths among the colored.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Lenoir	
Alexander	Dr. T. F. Stevenson.	Lincoln	
Alleghany	Dr. B. E. Waddell.	McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg	Dr. C. M. Strong.
Bladen	Dr. Newton Robinson.	Mitchell	Dr. C. E. Smith.
Brunswick		Montgomery	
Buncombe	Dr. E. R. Morris.	Moore	Dr. Gilbert McLeod.
Burke	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell	Dr. A. F. Houck.	Northampton	Dr. H. W. Lewis.
Camden		Onslow	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico	
Catawba	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Aydlett.
Chatham	Dr. H. T. Chapin.	Pender	Dr. George F. Lucas.
Cherokee	Dr. S. C. Heighway.	Perquimans	Dr. C. C. Winslow.
Chowan	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. W. E. Sanderson.	Pitt	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare		Rockingham	Dr. Sam Ellington.
Davidson	Dr. John Thames.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. J. W. Littleton.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCaless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. R. L. Davis.
Gates	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham		Tyrrell	
Granville	Dr. S. H. Cannady.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. W. T. & G. Cheat-
Guilford	Dr. B. W. Best.		ham.
Halifax	Dr. I. E. Green.	Wake	Dr. P. E. Hines.
Harnett	Dr. O. L. Denning.	Warren	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga	
Hertford	Dr. John W. Tayloe.	Wayne	Dr. W. J. Jones.
Hyde		Wilkes	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson	Dr. E. G. Moore.
Jackson	Dr. Wm. Self.	Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough ----- Typhoid Fever -----

Measles ----- Typhus Fever -----

Diphtheria ----- Yellow Fever -----

Scarlet Fever ----- Cholera -----

Pernicious Malarial Fever ----- Smallpox -----

Hemorrhagic Malarial Fever ----- Cerebro-spinal Meningitis -----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

----- M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D....Asheville.
HENRY W. LEWIS, M. D.....Jackson.
HENRY H. DODSON, M. D.....Milton.

C. J. O'HAGAN, M. D.....Greenville.
J. L. NICHOLSON, M. D.....Richlands.
ALBERT ANDERSON, M. D.....Wilson.
A. W. SHAFFER, SAN. ENG.....Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

DECEMBER, 1899.

No. 9.

The Outbreak of Fever at the State Normal and Industrial College.

(CONTINUED).

In our last issue we made a preliminary statement in regard to the subject set forth in the title of this article, and promised to give in the present number of the BULLETIN a fuller report. To meet the deep and widespread interest felt in this matter as promptly and thoroughly as possible, we prepared for the press, at the request of the Directors of the College, a report which appeared in the morning papers of the State on December 3d. As another report would necessarily be mostly repetition of that, and as many of our readers doubtless did not see it, we reprint it. To those who have read it we would suggest skipping to the "Supplementary Report," in which will be found certain new facts of interest and value ob-

tained since the original report was written. The report of December 3d was as follows:

The recent outbreak of fever at the Normal and Industrial College at Greensboro has excited in the hearts of the people of the whole State the deepest sympathy and concern. The greatest interest in the origin of the epidemic is naturally and properly felt by all. Rumors have been started, having no basis in fact. To correct any misapprehensions, and for the information of the people of the State, the Board of Directors, at a meeting held at the College on November 30th, requested me, as Secretary of the State Board of Health, to prepare and give to the press an official statement of the facts as ascertained to date. I was instructed to be perfectly frank, concealing nothing. If, therefore, anything of importance should happen to be omitted from this statement the reader may rest assured that it was not intentional, but the result of a poor memory, or the hurry that very busy men cannot always escape.

Learning Friday night (November 24th), that the Board of Directors of the College would meet on Monday, and knowing that the committee of the Board of Health which made an investigation early in the week would not be able to get in their formal report in time, I felt it to be my duty, as the executive member of the Board of Health, to make a personal investigation and be prepared, as far as possible, to enlighten and advise the Directors if desired by them.

Accordingly, I repaired to Greensboro early Saturday morning, and remained there until Tuesday morning, spending the whole time from breakfast to bed-time, except Sunday morning, at the College.

After talking over the whole matter with President McIver, my first inquiry was

"THE NATURE OF THE FEVER."

Requesting an interview with the physicians in charge, it was promptly accorded, and I had a very full and satisfactory conference with Dr. Gove, the resident physician, and Dr. W. P. Beall, the chief consultant, which convinced me beyond doubt that the first cases, about sixty of the total number of one hundred cases, beginning about October 25th, were malarial in character. For the benefit of the medical reader, I will state that this conclusion was based upon the description of the attack given by the doctors, the presence of the plasmodium malarie in the blood of six of the eight cases whose blood was examined microscopically (I verified this by a personal examination of two specimens that had been kept), and recovery in from 4 to 10 days under quinine. The remaining forty cases in round numbers were clearly typhoid fever. Of this number about ten seemed to have been the subjects of a double infection, with both malarial and typhoid, and the remainder uncomplicated typhoid, typical in character.

I was also informed that the sickness was strictly limited to students who ate and slept in the College.

Having satisfied myself as to the nature of the sickness, my next step was to ascertain, if possible, the cause or causes of both. We will first consider

THE MALARIAL FEVER.

The only thing about the premises I could find at all likely to produce malaria was a narrow marshy valley, carrying a very small stream—so small as to be scarcely perceptible in places—immediately in the rear of the row of buildings composed of the president's house, the wooden dormitory, the infirmary and the horse-stable. Upon inquiry, I also learned that mosquitoes had been very abundant.

But in this connection it should be said that malarial diseases have been unusually prevalent this season in the hill country of the State. The reports from the county superintendents of health for September, published in the monthly BULLETIN of the State Board of Health for October, showed malarial fever present "in all parts" of Alamance, Cabarrus, Caswell, Davidson, Guilford, Mecklenburg and Rowan. It is fair, therefore, to assume that some of the students brought the malaria with them from home, but others, perhaps many, were unquestionably affected at Greensboro, as at least two girls from the mountains had malarial fever. [Malarial fever, I learned, had also been very prevalent this fall in the houses to the northwestward of the College, the nearest case occurring in September in a house not more than two hundred yards distant.] Information obtained on a subsequent visit.

It should not be forgotten that this has been an exceptional year for malaria in the middle section of the State.

THE TYPHOID FEVER—ITS CAUSES.

Typhoid fever is essentially a filth disease, the germ of which is known as the bacillus typhosus, a motile, water-borne bacterium, which once introduced into water, or milk, or moist filth reproduces itself with fearful rapidity by fission or splitting in half. The media of transmission of this germ are in the order of their importance water, milk, insects (flies) and air (?) While many high authorities, chiefly English, believe in the aerial transmission, the weight of opinion is against it. But all agree that in an immense majority of cases it is conveyed by contaminated water, or milk infected by such water used in adulterating it, or in washing the cans or the udder of the cow, or by the hands of a not over cleanly milker, who either has a "walking" case of the disease himself, or has infected his hands in nursing a case.

Bearing these principles in mind, I made a personal inspection of the premises, but found nothing that had not already been discovered by the indefatigable President and his assistants. I will give my observations in the inverse order of their importance.

THE GROUNDS.

Nothing was found that in any way, in my judgment, could have been in the least instrumental in causing typhoid fever.

The dairy, cow-barn, horse-stables, and pig-pens were all in good condition. The last named was too far away to have had any effect, even if its condition had been bad.

THE SEWERAGE AND PLUMBING.

When the first dormitory (brick) was built in 1892, a sewer-pipe was laid, with which was connected one water-closet, which was kept locked and used only in case of sickness, the bath-tubs, the waste-pipe from the kitchen sink and five down-spouts from the roof. In 1895 a new system of sewers was

put in and the old sewer abandoned, as was supposed, except as a drainage pipe for the roof water; but it turns out that the plumbers, when making a connection for the sink of the new kitchen, made it with this, thinking it was the new sewer, which was of the same size—eight inches. When taken up (as has been done, the trench being disinfecting) this old sewer, while very offensive to the nose from the decaying animal and vegetable matter from the kitchen sink, like the old-fashioned dunghill at the back window of many a country kitchen, was said to have been tight and well scoured. It showed, however, one defect which should be mentioned in this discussion, namely, a small opening at the top, due to a bad joint, in the space under the butler's pantry adjacent to the butter-room.

The new sewers, as far as examined, were in good condition, except the stoppage of one near the President's house, about 100 yards below the Teague house, by the roots of a tree—an accident which is said to be practically unavoidable. This had been remedied at the time of my visit.

THE PLUMBING.

While mended plaster and stains on the wall under lavatories, and bath tubs in some instances indicated defective work at first, these defects had been remedied, and I should say that the interior plumbing was good. I regret to say that the same cannot be said of all the external plumbing, by which is meant the connections between the house fixtures and the sewer, for one notable exception was found in a leaking soil pipe connecting ten water-closets on the second floor of the main or brick dormitory with the main sewer. This pipe was not leaking at the time of my visit, for it had been torn out and replaced as soon as the leak was found, but all agree that it was leaking when examined—on the 18th, if I

mistake not—and that the adjacent soil was wet. This pipe was 17 feet long. The first five feet from the down pipe being of iron, and the remaining 12 of 6 joints of terra cotta, which latter section, beginning not quite a foot under the surface of the ground, rapidly descended to the main sewer at a depth of 4 feet. It ran under the butler's pantry or serving room of the dining room, the floor of which is about $2\frac{1}{2}$ feet above the ground, parallel to and 18 inches distant from one wall of a closet under the steps leading from the dining room to the dormitory above. In this closet, for the lack of any other approximately cool place, the butter was kept—only, however, for a few days at most, after being received from the dairies before being consumed. The cakes of butter, with very rare exceptions, were wrapped in impervious parchment or paraffin paper. In the wall of the butter closet adjacent to the soil pipe an opening 20 by 42 inches, the bottom being on the floor, which was practically on a level with the ground, had been cut for ventilation. Opposite this opening and in a line across the leaking soil pipe and the saturated earth, and about 20 feet distant, was the only opening in the foundation wall of that section of the building.

In this discussion of the sewerage, I wish to acknowledge my indebtedness to Col. A. W. Shaffer, the sanitary engineer of the Board of Health, and to Mr. J. L. Ludlow, C. E., of Winston, an ex-engineer of the board, and now so well and favorably known in that capacity throughout our State and other Southern States, who was employed by the College to make an inspection.

FLIES.

Flies convey the germs by walking over the bowel discharges of a typhoid fever case and carrying them on their feet to food in the kitchen or dining room. I made care-

ful inquiry as to the occurrence of typhoid in the neighborhood of the college. I could learn only of one case, in the person of the night watchman, who was sick in August. I sent for and questioned him as to the disposal of his dejections, and was informed that they were invariably placed in a hole dug in his garden, disinfected and covered up with earth. Flies did not frequent the sewage-wet earth, around the leaking soil pipe, because it was too dark for them. The fly must be excluded in this instance as a cause. In passing, I should say that there was no possibility of the contamination of the drinking water by this patient.

THE MILK.

There was no reason to suspect the milk, all of which was obtained from the college dairy, and the fact that only fourteen of thirty-eight patients drank milk when well, and the further fact that not a single case of sickness occurred in four families who bought milk from the College negatives this possible and not infrequently probable source of infection.

THE DRINKING WATER.

The water supply was obtained from the city water-works and three wells, one at the Teague house, across the street from the College, rented for a dormitory, located within ten feet of the house sewer; one at the wooden dormitory, within twenty feet of one of the main sewers; and one in the open space between the administration building, the brick dormitory and the dining-room, about 125 feet from the leaking soil pipe and fully as far from the sewer of the main building. This well is about 40 feet in depth, 15 feet being in earth and the rest in what appeared to be solid rock. Samples from all four of these sources were sent to the State Chemist for analysis by Dr. McIver as soon as the diagnosis of typhoid fever was made, and the analyses were made on

the 19th of November. The Chemist pronounced those from the three wells, from the chemical point of view, good drinking water, and that from the city supply bad, owing to the high percentage of albuminoid ammonia, though he stated that it might be due to vegetable contamination—as was doubtless the case, from fallen leaves in the stream furnishing the city water. As soon as I learned that the disease was typhoid fever, I wrote President McIver, suggesting that he write Dr. Anderson, at Wilson, the bacteriologist of the Board, for the section of the State including Greensboro, for sterilized bottles and have a bacteriological examination of the waters made, as it was much more important than a chemical.

He did so; the bottles came; the samples were taken, packed and carried in person by Prof. Joyner to the express office and receipt taken on Friday, November 24th. On Monday morning Dr. McIver telegraphed Dr. Anderson for the result of the examination for the meeting of the Board of Directors that night. He replied that the water had not been received. Inquiries showed that the box had never left the express office at Greensboro. I mention this to explain the delay at which the people were growing impatient, and would add that bacteriological examinations require several days. Other bottles were immediately sterilized, new samples taken and gotten off that night, the express company exerting themselves to hurry them forward.

Dr. Anderson's report has been received. It shows the water of the Teague well and of the central well near the brick dormitory to be infected with intestinal bacilli, and that of the other well and city supply to be free from harmful germs.

EXPLANATION.

The general impression, with a reservation as to the bacteriological examination,

was that the leaking soil-pipe was the cause of the fever, on the theory that every time the door of the butter-room was opened a draft of air from the outside blew over the sewage-saturated earth through the ventilator opening in the wall, carrying with it the germs and infecting the butter—and possibly other food products in the general store-room, the door of which is ten feet from that of the butter room and opens on a connecting passage. This condition was unsanitary in the highest degree, and sewer gas in sleeping and living rooms is undoubtedly a cause of disease, but, being extremely skeptical, to say the least, as to the aerial transmission of typhoid fever, I could not accept this theory, though I feared I would be compelled to do so. The cause, whatever it was, was one common to all the residents in the College, either food or drink, partaken of by all, as the sickness was impartially scattered through the three widely-separated dormitories. The central well was the only one used by all. Its location, 125 feet from the nearest sewer, slightly uphill, and twenty-five or more feet through solid rock, made its infection seem very improbable. But "solid" rock generally has cracks in it, and from somewhere, most probably, of course, the leaking soil-pipe, which may have been leaking for several years—it was put in in 1895—the sewage traveling very slowly, perhaps, and just reaching the well this fall, bacteria, found only in the intestine of man or animal, have gotten into that well. The surroundings exclude animal origin. The specific germ of typhoid fever is close akin to—some say identical with—the ordinary intestinal or colon bacillus, its habitat and habits being much the same; and drinking water contaminated with human sewage, although the bacillus typhosus may not be isolated, which is a difficult thing to do, is regarded as a sufficient cause for the disease. The

objection that the outside students drank of this same water, I would meet by saying that they were in the institution only five or six hours a day, five days in the week; that women proverbially drink very little water—too little for their own good, generally—and that small doses of the poison do not cause the disease always. Then some are more susceptible than others—hardly more than ten per cent. succumbed to full doses.

CARE OF THE SICK.

I went through the infirmary and saw the arrangement and management, and I do not hesitate to say that with skilful physicians, trained nurses, good surroundings and an affectionate interest on the part of every one connected with the College, the sick could not be cared for better anywhere.

THE MANAGEMENT.

In the light of what has occurred, it is easy to say that those in control of the institution are to blame. I think not, any more than we all are, under similar circumstances. As I understand it, the plumbing was let to responsible parties, the contract being for a "first-class" job, and there seems to have been no reason to suspect the leak, for a particular inquiry of the young lady who was in the butter room every day developed that she had not noticed any odor other than that usually found in all basements. None of us have our well examined bacteriologically unless there is reason to suspect it. Situated as it is, the contamination of the central well appeared hardly possible. If the management were deserving of criticism in the least it would surely come from the friends of the sick. With a remarkable unanimity they commend it in every respect.

I was particularly requested by the Board of Directors to state in this communication that they had by formal resolution expressed their approval of the action of the

executive committee and their appreciation of the conduct and work during this trying ordeal of President McIver and the members of the faculty, and their entire confidence in him and them. I was also asked to say that the report of the physicians to the board was eminently satisfactory. For myself I wish to say that I was more thoroughly convinced than ever of President McIver's eminent fitness for his position, and that I shared the confidence of the board in the medical attendants.

CONCLUSION.

The old sewer has been entirely removed, the leaking terra-cotta soil-pipe has been replaced with iron laid in lead joints, the contaminated earth will all be removed, and the space disinfected and refilled; the wells will all be filled up, and the city water will be safely used, probably sterilized to insure its keeping safe, and every nook and corner of the buildings used by the students will be thoroughly disinfected with bichloride of mercury and formaldehyde gas. In short, everything that science and common sense may suggest will be done, and, in my opinion, residents in the State Normal and Industrial College will hereafter be safer than ever before, and no old student need hesitate to return or new one to enter for fear of typhoid fever. There is no reason why the great usefulness of this noble institution should be impaired.

MORAL ON BEHALF OF THE BOARD OF HEALTH.

Every city and town should have an expert inspector of plumbing, and require inspection by him of every job before it is covered up and accepted, and all public institutions and private boarding schools and other establishments with plumbing should require a similar inspection. Wells near sewers, or any accumulation of filth, especially of human origin, are dangerous.

Guard with jealous care the purity of your drinking water.

SUPPLEMENTARY REPORT.

In order to ascertain if any sewage bacteria had been wafted into the butter closet from the air above the leaking sewer, sterilized swabs of cotton, after the manner of collecting the bacilli of diphtheria, having been dipped in boiled water, were wiped on the shelf behind the fruit jars in the said closet, on a ledge in the wainscoting near the ventilator opening, on the floor on the side opposite this opening, and in a small, dusty corner near the door, and in sterilized test-tubes were sent to Dr. Anderson and to Dr. A. C. Abbott, the distinguished bacteriologist of Philadelphia. Both reported no sewage bacteria found—as we expected.

Samples from the three wells, a cake of butter from one of the boxes, and a sample of milk were also sent to Dr. Abbott. He reported: for the Teague well, "suspicious organisms"; for the well at the wooden dormitory, "no suspicious organisms were found"; for the central well near the brick dormitory, "organisms belonging to the group of intestinal bacteria were found in this water." It will be noted that both the bacteriologists agreed in finding the Teague and the central wells infected, and the well at the wooden dormitory free from suspicious organisms. Colon bacilli were found in both the milk and butter, but we doubt if any milk from the neatest of ordinary dairies can be found uninfected with the colon bacillus of the cow, which is undistinguishable from that of the human being. But for reasons given in the report above, we are satisfied that the cause of the fever was not in the milk, and no butter is made at the College during the session. It is possible, however, it should be said, that some of the butter might have been infected at one of the various dairies from which it was

obtained by infected water used in washing it. There is no evidence of this to date. The specific bacillus typhosus was not found by either bacteriologist in any specimen, which, however, does not prove by any means that it was not present in the water. We learn from one of the highest authorities on the subject of very large experience in examinations of drinking water that he has never succeeded in isolating that bacterium in water.

The "weak spot" in our theory that the infected water of the central well was the cause of the typhoid fever was, what we then supposed to be the fact, that the outside students, none of whom were sick, also drank of this water from the coolers in the main building. Subsequent inquiry, however, has developed the fact that such was not the case. During the vacation the two or three officials remaining at work in their offices in the main building, thinking it best not to use water from a well not used by any one else, ordered the janitor to get their drinking water elsewhere, and he thenceforth obtained it from the "mineral spring" and the well at the wooden dormitory which was in daily use, and which, it will be remembered, was not infected. After the opening of the session he continued, without being told, to get the drinking water for the main building, it turns out, from the same pure sources, although the central well had been cleaned out. So the outside students did not drink of the water of the central well. This practically settles the question, to our mind, as to the origin of the disease. Upon making special inquiry, we learned that at the very beginning of the sessions of 1896 and 1895, there were respectively in the brick dormitory, whose water-closets emptied into the leaking sewer, one and two cases of typhoid fever, so that if the leaking sewer was the source of contamination, as is most probable, there being no other possible

source yet discovered, and if the typhoid bacilli could live so long in the sewer, the *specific* infection at the central well is clear.

In regard to the nature of the fever or fevers, the opinion has been expressed to us by three physicians whose opinions have weight with us, that all the cases were due to the typhoid poison. We appreciate the force of their reasoning, although we are by no means convinced. But as the physicians in attendance upon the sick will shortly make a full report, we postpone discussion of this question further until that is published. It is a very interesting question.

If there should be any new developments we will give our readers the benefit of them in our next issue.

Review of Diseases for November, 1899.

EIGHTY COUNTIES REPORTING.

Eighty-seven counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of November the following diseases have been reported from the counties named:

MEASLES.—Ashe, 6; Durham, a few cases; Moore, 1; Vance; Warren, a few.

WHOOPIING-COUGH.—Ashe, 10; Bun-

combe, 1; Chatham, a few; Cleveland; Columbus; Craven, 10; Granville, several; Greene, 6; Henderson, 10; Jackson, 4; Macon, a few; Madison, 10; Martin, 2; Mecklenburg; Nash, epidemic—14 counties.

SCARLATINA.—Craven, 2; Cumberland, 1; Duplin, 2; Granville, 1; Guilford, 2; Iredell, 1—6 counties.

DIPHTHERIA.—Buncombe, 1; Jackson, 6; Jones, 1; Madison, 4; New Hanover, 5; Randolph, 2; Rowan, 1; Union, 1; Vance, a few; Yadkin, 1—10 counties.

TYPHOID FEVER.—Alamance, 15; Ashe, 6; Burke, 1; Cabarrus, 6; Caldwell, 10; Caswell, 3; Catawba, 3; Chatham, many in one section, of a malignant type; Cherokee; Chowan, 2; Columbus, 3; Craven, 7; Cumberland, 5; Currituck, 1; Duplin, 3; Durham, many; Edgecombe, 4; Gaston, a few; Greene, 7; Guilford, 56; Harnett, a few; Henderson, 3; Iredell, a few in all parts; Jackson, 2; Jones, 3; Macon, many in the west; Martin, 2; Mecklenburg; Mitchell, 10; Moore, 7; New Hanover, 2; Orange, several; Pender, 2; Perquimans, 4; Pitt, in all parts; Richmond, many; Robeson; Rutherford; Sampson, a few; Stanly, several; Stokes, 1; Surry, 1; Transylvania, 1; Union, 10; Wake, 5; Warren, a few; Washington, 6; Wayne, 3; Wilkes, several; Yadkin, 3; Yancy, 8—51 counties.

MALARIAL FEVER.—Beaufort; Bladen, a few; Cabarrus, in all parts; Chowan, in all parts; Columbus; Craven, in all parts; Cumberland; Currituck, a few in all parts; Granville, in all parts; Greene; Iredell, a few in all parts; Johnston; New Hanover; Orange, in all parts; Perquimans; Person; Richmond, many; Sampson; Surry—19 counties.

MALARIAL FEVER, PERNICIOUS.—Beaufort, a few; Johnston, 1.

MALARIAL FEVER, HEMORRHAGIC.—Chowan, 3; Cumberland, 1; Johnston, 3; New Hanover, 1; Perquimans, 5; Surry 2—6 counties.

INFLUENZA.—Ashe, in all parts; Bertie, mild; Halifax, Harnett; Macon; Sampson; Surry—7 counties.

MUMPS.—Wake, 1.

PNEUMONIA.—Gaston, several; Harnett; Orange.

VARICELLA.—Union.

SMALL-POX.—Chatham, 10; Guilford, 23; Halifax, 50; Mecklenburg, 1; Northampton, 1; Rowan, 16; Vance, 1—7 counties.

CHOLERA, IN HOGS.—Bladen; Jackson; Martin; Northampton.

DISTEMPER, IN HORSES.—Jackson.

No diseases are reported from Alexander, Carteret, Davidson, Davie, Forsyth, Franklin, Gates, Haywood, Hertford, McDowell, Onslow, Pasquotank, Polk and Swain.

No reports have been received from Alleghany, Anson, Clay, Lenoir, Rockingham, Watauga and Wilson.

Summary of Mortuary Reports for November, 1899.

(TWENTY-ONE TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	87,901	59,799	147,700
Aggregate deaths....	9.8	14.2	11.6
Representing temporary annual death rate per 1,000	10.4	22.2	15.2

Causes of Death.

Typhoid fever	5	0	5
Malarial fever.....	1	3	4
Dyphtheria.....	1	2	3
Whooping-cough...	1	0	1
Pneumonia.....	3	3	6
Consumption	5	9	14
Brain diseases.....	2	0	2
Heart diseases.....	7	2	9
Neurotic diseases...	0	1	1
Diarrhoeal diseases	6	2	8
All other diseases..	41	48	89
Accident.....	0	1	1
	<hr/> 72	<hr/> 71	<hr/> 143
Deaths under five years.....	21	21	42
Still-born.....	7	8	15

Mortuary Report for November, 1899.

TOWNS AND REPORTERS.	RACES.	POPULATION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	Total Deaths.	By Races.	By Towns.	Deaths under five years.	Still-born.
		By Races.	Total.	By Races.	Total.																					
Asheville	W.	8,000	13,000	10.5	11.1	...	...	...	1	1	...	...	...	...	...	...	1	4	...	...	...	7	5	12*	3	1
Dr. M. H. Fletcher.	C.	5,000		12.0		...	...	...	...	...	...	...	2	...	...	...	1	2	...	...	...	5	4	1	1	2
Charlotte	W.	19,176	29,000	8.1	9.5	1	...	...	...	...	...	...	1	1	1	...	12	7	...	...	...	13	23	5	5	
Dr. F. O. Hawley.	C.	9,824		12.2		...	...	...	...	...	...	1	1	...	...	...	1	7	...	...	...	10	23	2	...	
Durham	W.	4,000	6,000	3.0	10.0	...	...	...	...	...	...	...	2	...	1	...	...	1	...	...	...	1	5	1	...	
Dr. Z. T. Brooks.	C.	2,000		24.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	4	...	...
Fayetteville	W.	3,500	6,000	6.8	12.0	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	2	2	6	1	...
Dr. J. V. McGougan.	C.	2,500		19.2		...	...	...	...	...	...	...	1	...	...	...	2	...	...	...	...	4	4	...	...
Henderson	W.	2,250	4,250	5.3	8.5	...	...	...	1	...	...	...	...	...	...	...	...	1	...	...	...	1	3	1	...	
Dr. W. J. Judd.	C.	2,000		12.0		...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	2	2	2	...	
Hillsboro	W.	400	700	0.0	17.1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	1	...	
Dr. C. D. Jones.	C.	300		40.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Lenoir	W.	1,250	1,500	9.6	8.0	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1	1	...	...
Dr. Albert Houck.	C.	250		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Marion	W.	800	1,200	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. B. A. Cheek.	C.	400		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Monroe	W.	1,800	2,400	13.3	15.0	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2	3	...	
Dr. J. M. Blair.	C.	600		20.0		...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...
Oxford	W.	1,200	2,300	10.0	20.9	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	1	...	...
Dr. S. H. Cannady.	C.	1,100		32.7		...	...	...	...	...	...	...	...	...	...	...	...	2	1	...	...	3	4	...	...
Raleigh	W.	11,000	20,000	9.8	9.0	...	...	...	...	...	...	...	2	1	1	...	1	4	...	...	...	9	15	3	...	
T. P. Sale, Clerk B. H.	C.	9,000		8.0		...	...	...	...	...	...	1	...	...	...	...	...	5	...	...	...	6	15	1	3	
Rockingham	W.	1,350	1,750	26.6	20.6	1	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	3	3	...	...
Dr. J. M. Covington.	C.	400		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Rocky Mount	W.	1,600	2,600	15.0	13.8	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	...	...
Dr. G. L. Wimberley, Jr	C.	1,000		12.0		...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	3	1	...	
Salem	W.	4,100	4,550	29.3	26.4	1	...	1	...	...	...	1	1	...	2	...	1	3	...	...	...	10	10	2	...	
S. E. Butner, Mayor.	C.	450		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Salisbury	W.	6,000	9,000	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. W. W. McKenzie.	C.	3,000		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Scotland Neck	W.	775	1,200	15.5	10.0	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1	...	...
J. A. Perry, Mayor.	C.	425		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Tarboro	W.	2,000	3,000	0.0	4.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	1	
Dr. L. L. Staton.	C.	1,000		12.0		...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1	...	...
Washington	W.	3,500	6,000	6.9	16.0	...	...	...	...	...	...	...	2	...	...	...	1	1	...	...	...	2	2	...	1	
Dr. P. A. Nicholson.	C.	2,500		28.4		...	1	...	...	...	...	...	...	...	...	...	...	3	...	...	...	6	6	...	1	
Weldon	W.	700	1,450	34.3	24.8	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	...	...
J. T. Gooch, Mayor.	C.	750		16.0		...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	3	...	...
Wilmington	W.	12,000	27,000	16.0	16.0	...	1	...	...	...	...	...	...	...	...	...	15	...	...	...	...	16	36	4	...	
Dr. W. D. McMillan.	C.	15,000		16.0		...	1	...	...	...	...	...	1	...	...	...	18	...	...	...	...	20	20	5	2	
Wilson	W.	2,500	4,800	0.0	15.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. Albert Anderson.	C.	2,300		31.3		...	...	...	...	...	...	...	1	...	...	...	4	...	...	...	...	6	6	...	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*In addition seven non-residents died of Consumption.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Lenoir	Dr. W. T. Parrott.
Alexander	Dr. T. F. Stevenson.	Lincoln	
Alleghany	Dr. B. E. Waddell.	McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg	Dr. C. M. Strong.
Bladen	Dr. Newton Robinson.	Mitchell	Dr. C. E. Smith.
Brunswick		Montgomery	
Buncombe	Dr. E. R. Morris.	Moore	Dr. Gilbert McLeod.
Burke	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell	Dr. A. F. Houck.	Northampton	Dr. H. W. Lewis.
Camden		Onslow	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico	
Catawba	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Aydtlett.
Chatham	Dr. H. T. Chapin.	Pender	Dr. George F. Lucas.
Cherokee	Dr. S. C. Heighway.	Perquimans	Dr. C. C. Winslow.
Chowan	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. W. E. Sanderson.	Pitt	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. J. W. Littleton.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. R. L. Davis.
Gates	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham		Tyrrell	
Granville	Dr. S. H. Cannady.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. W. T. & G. Cheat-
Guilford	Dr. B. W. Best.		ham.
Halifax	Dr. I. E. Green.	Wake	Dr. P. E. Hines.
Harnett	Dr. O. L. Denning.	Warren	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga	Dr. E. F. Bingham.
Hertford	Dr. John W. Tayloe.	Wayne	Dr. W. J. Jones.
Hyde		Wilkes	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson	Dr. W. S. Anderson.
Jackson	Dr. Wm. Self.	Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

.....

Has any epidemic occurred among domestic animals? If so, what?

.....

What is the sanitary condition of your section, public and private?

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General Remarks:

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..... M. D.

..... 189

..... N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
HENRY W. LEWIS, M. D., Jackson.
HENRY H. DODSON, M. D., Milton.

C. J. O'HAGAN, M. D., Greenville.
J. L. NICHOLSON, M. D., Richlands.
ALBERT ANDERSON, M. D., Wilson.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

JANUARY, 1900.

No. 10.

The Small-pox Situation.

It is with much regret that in the conditions as regards small-pox now prevailing in the State, we find the fulfilment of our prediction that the disease would in all probability be worse this winter than it was last. The reports from County Superintendents of Health for December, 1899, show small-pox present in fifteen counties, the total number of cases being 162, plus "a few" in Davidson county (see review of diseases for December, 1899). Since the first of January new *foci* of infection have developed in eleven additional counties, namely, Alamance, Bertie, Davie, Forsyth, Gates, Moore, Orange, Richmond, Robeson, Stanly, and Watauga—one case only in all but Gates and Richmond—and some outbreaks have materially increased in extent. As definite reports are only made to us monthly, we are unable to give the exact number of cases at this writing, but it is certainly much greater than it was two weeks ago. In a word, small-pox is spreading rapidly in North Carolina just now. The causes are failure

in previous cases to enforce proper disinfection of premises and personal effects of the patients, neglect of vaccination, and the "kicking doctor."

As nearly every outbreak can be traced to a visitor from another State, our own health officers, it appears, are not often to blame, but those of our neighbors. At the same time we cannot say that we are entirely without sin in this respect, and we trust that all County Superintendents of Health and municipal health officers will be very careful in this matter of disinfection. "A lick and a promise" will not answer, but the work must be *thoroughly* done to be effective, or seed-beds for another crop next winter will be left. For all outbreaks of this origin, the health officer is responsible, for the law definitely and positively makes it his duty to see that both quarantine and disinfection are properly carried out. He should never forget the fearful consequences that may follow a neglect in any particular of this most important duty.

The neglect of vaccination is attributable to several causes. In the first place, to an unreasonable prejudice against it on the part of many people, chiefly of the more ignorant classes. Owing to the remarkable mildness of the disease as it has so far appeared, the death rate being less than two per cent., the corrective effect of fear cannot be brought to bear with much force upon this prejudice. So that this attitude on the part of the people can be understood, and in the case of the laboring man who, with his family, is dependent upon manual toil, perhaps, excused. But there is another influence which re-enforces this prejudice and mightily supports the obstructionists, and that is what we call, rather inelegantly, perhaps, the "kicking doctor." We had occasion to refer to him last season, but we had hoped that with increase of knowledge he would disappear, but it seems that he is still with us. Generally the physician who has talked the loudest and longest in dispute of the diagnosis of small-pox has uniformly and persistently refused all invitations to see the case, and for him, of course, there can be no excuse whatever. But when the disease first appeared there was undoubtedly often reasonable ground for doubt on the part of even intelligent and learned physicians.

The disease as it has appeared in this country during the past two years, in addition to its extraordinary mildness in most cases, has assumed irregular and unusual forms, different in some respects from the descriptions to be found in the text-books—the only sources of information, fortunately, for many years available to an immense majority of our medical practitioners. Hence, the chief reason for the mistakes in diagnosis. In nearly every instance, however, the exceptions having been very rare, experts have declared the disease to be genuine small-pox. Now, these facts have been before the medical public for at least a

year, and one would think that they would be given due weight in coming to a conclusion, but to our mind the strangest feature of the position of those denying the diagnosis of small-pox has been almost their invariable contention that the disease was chicken-pox, even when occurring in adults. We are sure we are not expressing it too strongly when we say that every physician that can fairly claim to be well-informed knows that chicken-pox is so rare in adults that it is practically unworthy of consideration in making a diagnosis of an eruptive disease in a person past the period of childhood. We will wager that not one per cent. of the physicians of North Carolina saw a single case of chicken-pox in a grown person in the ten years preceding 1893, notwithstanding its frequent prevalence among the children of their clientele. Then, why so many cases of chicken-pox now, when it is known of all men that genuine small-pox, although frequently atypical in form, is widely prevalent.

As we do not claim to be an authority on this subject, we beg leave to support our position by the following quotations from those acknowledged by all to be among the highest authorities, which we find reprinted in a recent supplement of the *Ohio Sanitary Bulletin* from the nineteenth annual report of the South Carolina Board of Health:

Osler, Principles and Practice, Second Edition, page 69: "Varicella is an acute contagious disease of children, it is a disease of childhood. A majority of the cases occur between the second and the sixth year. It is rarely seen in adults."

Keating Ency. Diseases of Children, article Varicella, by Dr. Charles G. Jennings: "An acute specific infectious disease peculiar to infancy and childhood. In children over ten years of age the disease is rare, while in adult life it is so infrequent that many observers of large experience have not met with

it. Varicella is particularly a disease of infancy and early childhood. Any varicella-like eruption in an adult should be looked upon with the greatest suspicion and the patients strictly isolated until by the history of the case, its source and the course of the disease, all doubt as to the diagnosis is dispelled."

Dr. James Nevens Hyde, in Pepper's System of Medicine, says: "Varicella is essentially a disease of early life, occurring almost exclusively in infants and young children."

Alex. Collie (Quain's Dictionary of Medicine), says: "It is certain it arises from contagion, and childhood is a predisposing cause. It occurs in children at the breast, and is seen with increasing frequency up to the fourth year, at which period it attains its maximum. It is less often found between four and twelve, and after twelve it may be said to disappear, although it is occasionally seen in adults."

Bartholow's Practice of Medicine, Fifth Edition, page 717: "It is a disease of childhood, and rarely attacks any above ten years of age."

Dr. Louis Thomas (Leipzig Ziemssen's Cyclopædia), says: "Varicella is a disease of childhood and attacks by preference young children and even sucklings. In children over ten years of age attacks are infrequent, and I never saw an adult suffering from varicella. Eruptions resembling varicella in adults always indicate variola."

To these we would add:

Dr. James T. Whitaker (American Text-book of Theory and Practice of Medicine, page 299), says: "It (varicella) is confined exclusively to childhood (exceptions having been noted by Heberden, Gregory and Seitz) up to the age of ten, and is rare after twelve."

We hope that hereafter any physician who feels it incumbent on him to uphold the proverb, "doctors differ," when the case

under consideration is an adult, and especially if the history of recent successful vaccination is not clear, will fall back on something else than chicken-pox—say "*impetigo contagiosa*"—it sounds bigger—or "Cuban itch," or "elephant itch," or "Georgia bumps," or "any other old thing." But jesting aside, this is a very serious matter, as we know from experience. This refusal to accept the diagnosis of small-pox, which, with very rare exceptions, has always proved to be correct, by a few physicians—not many we are glad to say—has done much harm in our State. It has furnished a rallying cry for those opposed to vaccination, it has undermined public opinion, and it has supplied an excuse for inaction to weak-kneed officials. As every one knows, promptness and thoroughness of action upon the appearance of a case of small-pox in a community, in isolating the case and all who have been exposed, and in vaccinating all the people, are absolutely necessary to its complete control. The "kickers" impede and delay this action, and in so far interfere with the welfare of the people.

We admit, of course, the right of every man to his own opinion, but we deny the right to an unnecessary public expression of that opinion when it is calculated to endanger the lives and prosperity of his neighbors.

In the face of the conditions that now confront us, it seems to us, with all due deference, that the proper attitude of the patriotic physician towards small-pox is this: If he has not seen the case, he cannot, of course, give an opinion as to the diagnosis, but if asked directly he should say—as the present state of affairs would fully justify—that he does not know, not having seen it, but that in view of the wide dissemination of the disease throughout the State and country, it is most likely small-pox, and advise the questioner to

be vaccinated with all under his control at once. If he has seen the case first and has the slightest doubt about its nature he should call a consultation immediately. If there is still reasonable doubt about it after careful consideration, an expert should be asked for. In the meantime he should give the people the benefit of the doubt, which is the accepted rule under such circumstances, and although personally he might honestly believe it to be some other disease, he should bury his own opinion for the time, and to all questions say: "It is doubtful. Be vaccinated." This course should also be pursued by consultants.

Knowing the physicians of the State to be as a class a high order of men, we hope and believe that the course of action suggested above would be followed of their own motion, but small-pox is a comparatively new disease with us, its occurrence in a community causes much excitement and anxiety among the people, their doctor is the one to whom they first turn, and in view of the gravity of the situation and of their power to control it, we trust that the word of warning we have felt it to be our duty to utter will not be taken amiss, for a grave responsibility rests upon every one of us in this matter.

Under the present circumstances every case of eruptive disease resembling small-pox, about which there is the slightest doubt, should be managed as if it were small-pox until it is disproved.

The Diagnosis of Smallpox.

In view of the atypical character of many cases in the prevailing outbreak of small-pox and the consequent difficulty in making a positive diagnosis; of the great importance of coming to a definite conclusion *promptly*; and of the fact that any physician is now

liable to be called on at any time to make the diagnosis, we feel that our medical readers will appreciate the following liberal extract from a recent circular, which explains itself:

THE DIAGNOSIS OF SMALL-POX.

Circular issued by Provincial Board of Health of Ontario to Physicians, Medical Health Officers and Members of Local Boards of Health of Ontario.

DEAR SIRS:—In consequence of the occurrence during the past year of an eruptive contagious disease in many parts of the continent of America presenting some of the characteristics of small-pox, yet so mild in the large proportion of cases as to have caused a very low mortality, there has, as a consequence of this, resulted in many instances a failure to diagnose its true character. The disease has, therefore, in many States become epidemic, causing, if not much loss of life, at least great loss of time and money in suppressing it. Inasmuch as at any moment, especially in the coming cold weather, it may take on all the virulent characteristics of small-pox, the Provincial Board of Health desires to make all who may professionally or officially come in contact with the disease acquainted with its more marked characteristics.

The following are the signs and symptoms of small-pox generally noticed:

1. A prodromal period of more than 24 hours with headache, pain in back and vomiting.
2. The rapid abatement of prodromal fever and malaise on appearance of the secondary eruption.
3. A primary erythematous eruption or rash, especially covering the abdomen.
4. The appearance on the third day from offset of the papular eruption with its firm shot-like feeling, and the tendency of the eruption to appear especially on exposed

surfaces, as face and wrists, notably on forehead and about nose and lips.

5. The appearance early of a red areola around the vesicles, which follow in successive crops for two or three days, becoming mature and pustular by the fourth or fifth day with their typical umbilication.

6. The appearance of the eruptive vesicles on the roof of the mouth and fances—this being of special diagnostic value.

The rodent character of the pustules and the sub-cutaneous inter-cellular infiltration serve to complete a picture—which, if taken with the fact that it is a disease attacking adults equally with children, along with a history of probable infection—will cause in most instances the diagnosis to become easy.

All, however, who have come in contact with the present outbreak are agreed that these normal characteristics may be much modified.

Thus, Dr. John Coventry, Medical Health Officer for Windsor, in substance, states in a recent paper before the Windsor Medical Society, that:

1. Some have but little prodromal fever; some have pains in back, some do not; some vomit, some do not.

2. In some the eruption without shotty feeling appeared altogether and disappeared with one crop; in others there is the shotty feeling with the succession of crops.

3. All the secondary eruptions are papular in the first stage (there being seldom any primary rash) and become vesicles within two days; some have aborted at this stage and dried up, while others become semi-purulent, marked at the apex with a dark spot, but with no umbilication.

4. In no case has there been secondary fever.

5. Adults have had a more severe eruption than children, the vesicle in the latter blackening and drying up at the vesicular stage, the crust falling off at the seventh or tenth day from beginning of eruption.

6. Some have the eruption on the face and some have not.

7. None of the cases seen by him had been vaccinated; *while vaccinated persons living in contact with it do not contract the disease*, and children vaccinated in time in houses where it is have escaped it.

8. The outbreak has been traced to a man from district where it prevailed epidemically.

William M. Welch, M. D., of Philadelphia, in a circular issued by the Pennsylvania State Board of Health is quoted, in substance, as follows:

"After a careful examination, I have no hesitation in saying that the disease about Pittsburg is small-pox. It is extremely mild in character, so mild that many of the more usual symptoms are either absent or so indistinctly marked as to be overlooked. No weight should be given to the absence of the so-called characteristic small pox odour, or of the secondary suppurative fever."

The circular issued by the State Board of Health of Indiana, states:

1. There may be no destruction of the true skin, but it will always be possible to find a few typical indurated pustules not simulated by any other condition.

2. It is characteristic that these pustules will not on pricking completely discharge their contents, but will be found to retain a firm base, raised somewhat above the level of the surrounding skin.

New Superintendents of Health.

It gives us pleasure to state that our recent circular-letter to county commissioners in regard to the election of county superintendents of health has borne fruit, in three counties at any rate. In response thereto Dr. D. B. McNeill has been elected for Brunswick county, Dr. W. B. Fearing for Dare and Dr. E. H. Jones for Hyde. There still remain, however, six counties, not counting the new county of Scotland, which has not yet been organized, without this important official—peculiarly important just now. They are Camden, Graham, Lincoln, Montgomery, Pamlico and Tyrrell. We trust, however, that their respective boards will remedy this serious omission at their meeting in February.

Review of Diseases for December, 1899.**EIGHTY-ONE COUNTIES REPORTING.**

Eighty-nine counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of December the following diseases have been reported from the counties named:

MEASLES—Ashe, 5; Granville, 2; Greene, 6; Harnett, a few; Moore, 1; Orange, many; Person, 2; Rutherford, many; Union, 1;

Vance, in all parts; Wake, 4; Wilson, 15—12 counties.

WHOOPIING-COUGH—Cleveland, many cases; Columbus, many; Craven, 26; Greene, 2; Guilford, 6 or 8; Johnston, several; Martin, 6; Mecklenburg; Nash, a few; Randolph, 5; Stanly, several; Wake, 9—12 counties.

SCARLATINA—Craven, 1; Guilford, 2; Iredell, 5; Mecklenburg, 1; New Hanover, 3; Surry, 1; Warren, 1—7 counties.

DIPHTHERIA—Ashe, 8; Buncombe, 1; Cabarrus, 1; Gaston, 1; Guilford, 1; Mecklenburg, 1; New Hanover, 13; Randolph, 1—8 counties.

TYPHOID FEVER—Ashe, 3; Beaufort, a few; Burke, 1; Cabarrus, 12; Caldwell, 3; Clay, 1; Columbus, 3; Craven, 1; Currituck, 1; Davie, 1; Edgecombe, 9; Forsyth; Greene, 2; Guilford, 2; Harnett, a few; Hertford, 2; Jones, 4; Macon, several; Madison, 4; Martin, 5; Mecklenburg; Mitchell, 5; New Hanover, 4; Orange, 2; Pender, 2; Person, 3; Pitt; Randolph, 3; Robeson; Rowan, 6; Rutherford, many; Stanly, several; Transylvania, 1; Union, 2; Warren, several; Watauga, 4; Wayne, 1; Wilson, 2; Yancey, 2—39 counties.

MALARIAL FEVER—Beaufort; Cabarrus, in all parts; Chatham; Harnett; Hertford; Lenoir; New Hanover, in all parts; Northampton; Orange, several; Sampson; Wake; Wilson—12 counties.

MALARIAL FEVER, PERNICIOUS—Beaufort, a few; Harnett, 1; New Hanover, 1—3 counties.

MALARIAL FEVER, HEMORRHAGIC—Hertford, 1; New Hanover, 2; Northampton, 3—3 counties.

HYDROPHOBIA—Gaston, 1 fatal.

INFLUENZA—Alamance, in all parts; Caswell; Greene, in all parts; Halifax; Iredell, in all parts; Johnston; Sampson; Union—8 counties.

MUMPS—Pitt.

PNEUMONIA—Alamance, in all parts; Halifax; Johnston; Lenoir, a few; Macon, more than usual; Martin, in all parts; Onslow, many; Orange; Perquimans, 5; Person, Randolph; Richmond, a few; Sampson; Stanly; Wake; Wilson; Yancey—17 counties.

SMALL-POX—Cabarrus, 5; Carteret, 1; Chatham, 14; Currituck, 1; Davidson, a few; Guilford, 60; Halifax, 17; Hertford, 1; Mecklenburg, 2; Nash, 4; Northampton, 9; Randolph, 1; Rowan, 30; Surry, 14; Union, 3—15 counties.

CHOLERA IN FOWLS—Gates; Haywood.

CHOLERA IN SWINE—Moore; Onslow; Yadkin.

PINK EYE IN HORSES—Washington.

No diseases of importance are reported from Alexander, Bertie, Bladen, Catawba, Chowan, Franklin, Haywood, Hyde, Jackson, McDowell, Pasquotank, Polk, Stokes, Swain, Washington, Wilkes and Yadkin.

No reports have been received from Alleghany, Anson, Cherokee, Cumberland, Duplin and Henderson.

**Summary of Mortuary Reports for
December, 1899.**

(TWENTY TOWNS).

Only those towns from which certified reports are received are included.

	<i>White.</i>	<i>Col'd.</i>	<i>Total.</i>
Aggregate population	84,551	57,399	141,950
Aggregate deaths.....	66	90	156
Representing temporary annual death rate per 1,000	9.4	18.8	13.2
<i>Causes of Death.</i>			
Typhoid fever	1	0	1
Malarial fever.....	1	4	5
Diphtheria	4	0	4
Pneumonia.....	10	13	23
Consumption	3	18	21
Brain diseases.....	4	3	7
Heart diseases.....	9	1	10
Diarrhœal diseases	1	0	1
All other diseases..	31	50	81
Accident.....	2	1	3
	66	90	156
Deaths under five years.....	14	21	35
Still-born.....	6	7	13

Mortuary Report for December, 1899.

TOWNS AND REPORTERS.	POPULATION.			TEMPORARY ANNUAL DEATH RATE PER 1,000.																			TOTAL DEATHS.		
	RACES.	By Races.	Total.	By Races.	Total.	Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	By Races.	By Towns.	Deaths under five years.	Still-born.
Asheville	W.	8,000	13,000	1.5	9.2	...	...	...	...	...	...	1	1	...	2	...	3	...	...	...	...	7	10	2	...
Dr. M. H. Fletcher.	C.	5,000		7.2		2	1	3	1	1
Charlotte	W.	19,176	29,000	3.1	7.5	...	...	...	...	...	...	1	...	...	1	...	3	1	...	...	...	5	19	3	2
Dr. F. O. Hawley.	C.	9,824		17.1		1	3	2	1	7	14	5	2
Durham	W.	4,000	6,000	9.0	8.0	...	...	...	...	...	...	1	...	...	...	...	2	...	...	...	...	3	4	1	...
Dr. Z. T. Brooks.	C.	2,000		6.0		1	1	1	1
Henderson	W.	2,250	4,250	16.0	14.1	...	...	...	...	...	...	1	...	1	1	...	...	...	...	...	...	3	5	...	...
Dr. W. J. Judd.	C.	2,000		12.0		2	2
Hillsboro	W.	400	700	60.0	34.3	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	...	2	2	...	...
Dr. C. D. Jones.	C.	300		0.0		0
Lenoir	W.	1,250	1,500	38.8	32.0	...	...	...	...	...	...	1	...	1	2	...	...	...	...	...	...	4	4	2	2
Dr. Albert Houck.	C.	250		0.0	
Marion	W.	800	1,200	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. B. A. Cheek.	C.	400		0.0	
Monroe	W.	1,800	2,400	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. J. M. Blair.	C.	600		0.0	
Oxford	W.	1,200	2,300	10.0	20.8	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	1	4	1	...
Dr. S. H. Cannady.	C.	1,100		32.7		1	2	3	...
Raleigh	W.	11,000	20,000	2.2	9.0	...	...	...	...	...	...	...	...	...	...	...	1	1	...	...	...	2	15	2	2
T. P. Sale, Clerk B. H.	C.	9,000		17.3		1	4	1	1	5	1	13	...
Rockingham	W.	1,500	2,000	16.0	24.0	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	2	4	...	...
Dr. J. M. Covington.	C.	500		48.0		1	1	2	...
Rocky Mount	W.	1,600	2,600	15.0	9.2	...	...	...	...	...	...	...	...	...	1	...	...	1	...	...	...	2	2	...	...
Dr. G. L. Wimberley, Jr.	C.	1,000		0.0		0	2
Salem	W.	4,100	4,550	11.7	13.2	...	...	...	...	...	...	...	...	...	...	...	...	4	...	...	...	4	5	1	...
S. E. Butner, Mayor.	C.	450		26.7		1
Salisbury	W.	6,000	9,000	10.0	10.7	...	...	...	...	...	...	...	...	1	2	...	...	1	1	...	...	5	8	...	...
Dr. W. W. McKenzie.	C.	3,000		12.0		2	1	3	...
Scotland Neck	W.	775	1,200	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
J. A. Perry, Mayor.	C.	425		0.0	
Tarboro	W.	2,000	3,000	6.0	12.0	1	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	1	3	...	...
Dr. L. L. Staton.	C.	1,000		24.0		2
Washington	W.	3,500	6,000	17.1	28.0	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	5	14	2	...
Dr. P. A. Nicholson.	C.	2,500		43.2		2	1	9	1
Weldon	W.	700	1,450	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
J. T. Gooch, Mayor.	C.	750		0.0	
Wilmington	W.	12,000	27,000	16.0	20.0	...	...	1	4	...	...	1	...	...	...	...	10	...	...	...	...	16	45	3	...
Dr. W. D. McMillan.	C.	15,000		23.2		1	5	3	1	19	29	6	2
Wilson	W.	2,500	4,800	19.2	30.0	...	...	...	...	...	...	2	...	...	...	...	2	...	...	...	...	4	12	...	...
Dr. W. S. Anderson.	C.	2,300		41.8		2	1	3	8	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*In addition five non-residents died of consumption.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Lenoir	Dr. W. T. Parrott.
Alexander	Dr. T. F. Stevenson.	Lincoln	
Alleghany	Dr. B. E. Waddell.	McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg	Dr. C. M. Strong.
Bladen	Dr. Newton Robinson.	Mitchell	Dr. C. E. Smith.
Brunswick	Dr. D. B. McNeill.	Montgomery	
Buncombe	Dr. E. R. Morris.	Moore	Dr. Gilbert McLeod.
Burke	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell	Dr. A. F. Houck.	Northampton	Dr. H. W. Lewis.
Camden		Onslow	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico	
Catawba	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Aydlett.
Chatham	Dr. H. T. Chapin.	Pender	Dr. George F. Lucas.
Cherokee	Dr. S. C. Heighway.	Perquimans	Dr. C. C. Winslow.
Chowan	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. W. E. Sanderson.	Pitt	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. J. W. Littleton.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCannless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. R. L. Davis.
Gates	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham		Tyrrell	
Granville	Dr. S. H. Cannady.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. W. T. & G. Cheat-
Guilford	Dr. B. W. Best.		ham.
Halifax	Dr. I. E. Green.	Wake	Dr. P. E. Hines.
Harnett	Dr. O. L. Denning.	Warren	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga	Dr. E. F. Bingham.
Hertford	Dr. John W. Tayloe.	Wayne	Dr. W. J. Jones.
Hyde	Dr. E. H. Jones.	Wilkes	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson	Dr. W. S. Anderson.
Jackson	Dr. Wm. Self.	Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough	Typhoid Fever
Measles	Typhus Fever
Diphtheria	Yellow Fever
Scarlet Fever	Cholera
Pernicious Malarial Fever	Smallpox
Hemorrhagic Malarial Fever	Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

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Has any epidemic occurred among domestic animals? If so, what?

.....

What is the sanitary condition of your section, public and private?

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General Remarks:

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..... M. D.

..... 189 N. C.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
HENRY W. LEWIS, M. D., Jackson.
HENRY H. DODSON, M. D., Milton.

C. J. O'HAGAN, M. D., Greenville.
J. L. NICHOLSON, M. D., Richlands.
ALBERT ANDERSON, M. D., Wilson.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

FEBRUARY, 1900.

No. 11.

A Word as to Quarantine and Disinfection.

As our readers are well aware, we are not a believer in the efficiency of the ordinary internal quarantine, by which we mean the attempt to prevent the introduction into an inland town of a contagious disease—say small-pox just now—from a neighboring town that is infected with it. Having previously given our reasons for holding to this opinion, we will not weary our readers with a repetition of them further than to simply state once more what we regard as the chief objection to it. It is this: It lulls the people into a false sense of security and, in so far, interferes with the application of the only sure preventive of small pox, namely, vaccination.

The aspect of quarantine that we now wish to consider is the quarantine of small-pox patients and those who have been exposed to the disease. In the management of an outbreak of small-pox this is, of course, all-important. It would be superfluous to dwell on this point, but for the fact that

from certain things that have come to our knowledge we fear that in some instances the quarantine is executed in so careless and slipshod a manner as to practically nullify it. For example: A negro living in the country was found to have small-pox. He was left in his own house (one-room hut, probably), together with the other members of his family. Notices were stuck up around the house stating the presence of the disease and warning all persons not to leave or enter under a penalty of \$25 fine. And this was all that was done. It is possible, of course, that the warnings were duly observed voluntarily by the inmates of the house, but it is extremely unlikely. It is somewhat more probable that the neighbors, for their own protection, took it upon themselves to see that they were heeded, but this is far from certain. In any event, this kind of quarantine cannot be depended on, and therefore should not be practised. As we understand it, no quarantine can be really effective without guards. Guards cost money, and there, we fear, is the trouble. The health

officer may be thoroughly informed and earnestly disposed to do his duty in the matter, but unless he is supplied with the "sinews of war" by the authorities, county or town, he is helpless. A conscientious regard for the judicious expenditure of the people's money by those having it in charge is greatly to be commended, but judicious expenditure does not mean unwise withholding. We cannot imagine any better way to spend the public moneys than in protecting the people who furnish it from so loathsome a disease as small-pox. Generally, when the cases become numerous and the people get scared, the purse-string is loosed and the necessary appropriation made, but by that time it has become a large and expensive problem. It seems to be a difficult matter to get those in authority to realize that it is not only best in every way, but *cheapest*, to act *promptly* and thoroughly and nip the epidemic in the bud. In nothing does the old proverb, "a stitch in time saves nine," apply more forcibly than in this matter.

From several sources complaints have been made to us of carelessness on the part of physicians attending small-pox, that they do not change their clothes after visiting the patient nor take any reliable precautions against carrying about with them and distributing the contagion. We fear there is some ground for these complaints, and, if true, we must say that we cannot think of any valid defense against them. A suit of overalls, a yard or two of cheese-cloth for covering hair and beard, and a bichloride tablet are both easily obtainable and very cheap. The extra time and trouble required is two small a matter to be considered. Such carelessness on the part of the attending physician would not only vitiate the quarantine in itself but set a most unfortunate example. Precept is of no avail as against example.

Di-infection, we fear, is not always thoroughly carried out. Patients, we doubt not, are sometimes discharged too soon, before desquamation is complete. It should not be forgotten that desquamation is not always complete when the scabs have fallen off, but is going on as long, it is said, as the little red specks remain in the pits. And the period of desquamation is the most dangerous stage of the disease to others. But the greatest danger lies in the failure to properly disinfect the houses and effects of the patients. This is due, perhaps in some cases, to lack of the proper facilities, although sulphur and an iron pot are surely within reach of every one. The best method, however, from every point of view is, in our opinion, by formaldehyde gas. Good generators of the gas can be obtained for from ten to thirty dollars, and they will last indefinitely, and every county and town in the State should possess one. There will be constant need of them for disinfection after diphtheria and scarlet fever even after small-pox has disappeared. But as suggested in our last issue, small-pox will not finally disappear if proper disinfection is neglected, unless all the people are vaccinated, which seems to be a vain hope. It will continue to recur indefinitely. So the best investment of money and the best work, next to vaccination, is in the line of disinfection.

Typhoid Fever at the State Normal and Industrial College in Greensboro.

BY W. P. BEALL, M. D., GREENSBORO, N. C.

[As all the physicians in the State receive the BULLETIN, and as all our readers, we are sure, have been interested in the outbreak of typhoid fever at the State Normal and Industrial College last fall, we are glad to reprint from the last issue of the *Carolina Medical Journal* the following medical history of it by Dr. Beall:]

The epidemic of typhoid fever at the State Normal and Industrial College in November last was so severe in character and so deplorable in results that it attracted widespread attention throughout the State. Knowing the special interest felt by the medical fraternity I have written its history, briefly, for their information, and crave pardon for any seeming egotism in writing in the first person.

On October 30th I was visited by Dr. Gove, the resident physician at the College, and consulted in regard to the unusual amount of sickness then prevailing among the students.

She stated that she had twenty-five or thirty cases on hand, all attacked during the preceding week. From her description of symptoms I agreed with her diagnosis of remittent fever, which disease had been unusually prevalent in Greensboro and Guilford county during September, and suggested a microscopical examination of the blood in a sufficient number of typical cases to confirm or disprove the diagnosis.

I also suggested, as a precautionary measure, the closing of the central, or main well, which was in most general use. She informed me that this had already been done. Three days later she reported that she found the malarial plasmodium in eight out of ten specimens examined, and was pushing quinine in full doses during the remissions.

Under this treatment the patients promptly improved, and, although many new cases appeared during the first week of November, on November 12th about four-fifths of them had been discharged cured.

Meanwhile, from the 8th to the 12th of November, there seemed to be a fresh outbreak of the disease, and on November 11th I was requested by Dr. Gove to see the cases with her. I found about sixty-five students confined to bed or room, some just begin-

ning to be sick, others who had been sick several days, others still who were convalescent. All of these cases were apparently remittent fever, as in all there was an initial chill, followed by a fever ranging from 103° to 104.6°, and with a distinct remission in eight to twelve hours.

All were on an anti-malarial treatment, which I approved, and it was continued in all the cases until the 16th. We decided, however, to close the two remaining wells, and barrels, filled with city water, sterilized by boiling, were placed in all the dormitories, and the students were instructed to use only this water for drinking.

On the 14th, Dr. Gove and myself discussed the advisability of suggesting to Dr. McIver a temporary suspension of the school term, but as no new cases were developing we decided the conditions did not warrant it. On the 15th, Dr. Richardson, of Greensboro, was called in to assist and relieve Dr. Gove, who was about exhausted by the continued tax upon her. Some of the cases were beginning to assume the typhoid aspect, and on Saturday morning we discovered the characteristic typhoid eruption on three patients. We at once notified Dr. McIver that we were now sure that typhoid fever was present; he immediately called the faculty and students together and announced the fact, and telegraphed the Board of Directors for authority to close the College.

On Sunday and Monday all of the young ladies who were well enough to travel left for home, leaving forty-eight in the college. Some of these were only slightly ailing, but we declined to allow them to travel without the escort of a parent or physician. A number of these came in response to telegrams, and eight young ladies were taken away. Representatives of more than thirty families remained and assisted in caring for their sick ones. Trained nurses had been secured from Richmond, Winston, Asheville

and other points, and by Tuesday night, November 21st, we had gathered most of the patients into one dormitory, and had organized an emergency hospital, which was working smoothly in thirty-six hours.

Five patients, who had their special physicians, were left in the main dormitory, together with three or four who were too sick to be moved.

On the 21st the eruption had appeared on ten cases, and by the 24th had showed on all except four cases. Of these, one case had neither typhoid nor remittent fever, but a nervous fever due to overwork and worry, and which disappeared in a week. Two proved to have remittent fever and recovered promptly as soon as they were brought fully under the influence of quinine. The fourth case was undoubted typhoid of mild type.

The routine treatment adopted was, calomel sufficient to keep the bowels acting daily until end of the second week or middle of third week. Afterwards the bowels were moved by enemas, or mild saline laxatives.

Guaicol carbonate combined with salol or thymol, or Woodbridge tablets No. 2, were given as intestinal antiseptics. To prevent, or arrest, hemorrhage we tried ergot, by mouth and hypodermically, opium, acetate of lead and turpentine.

Sponging with cold water and alcohol, cold and hot packs, and tub baths were the measures used to reduce and control temperature, and the presence of trained nurses enabled us to do this very efficiently. We tried the external use of liquid guaiacol in two cases, as an antipyretic, but very little effect was noticed and it was abandoned.

The effects of the water treatment varied greatly on different patients. Some of them enjoyed cold applications and a prompt reduction of temperature usually followed. Upon others sponging had absolutely no

effect; in some instances the temperature rose steadily in spite of prolonged sponging, lasting sometimes one hour, and no reduction followed. These cases were "packed," or put into the bath, usually with good result.

The ice bath was not used at all on account of the marked tendency to hemorrhage, but the graduated bath as being safer.

The water was used at a temperature of 85° to 90° at first, and was gradually cooled to 70°. This was generally satisfactory, but a few of the patients did not react well after any cool, or cold applications, though a stimulant was always given before or after using them, and here we resorted to hot packs. The effect of these was always good, reducing temperature, quieting the restlessness, and producing no shock. The fecal and urinary discharges were at once disinfected with chlorinated lime or bichloride solution.

The diet consisted of buttermilk, broths and liquid peptonoids. Very little sweet milk was used, as few of the patients seemed able to digest it in any form.

Eleven deaths occurred at the College. One of these was due to the effect of high temperature on a diseased heart, the patient having mitral insufficiency, and occurred in seven days after attack. This case was diagnosed as remittent fever, which was probably correct, though death occurred before a differential diagnosis could have been made.

Death was caused in four cases by profuse intestinal hemorrhage. One patient died from re-infection, the second attack being typical, even to a new and abundant crop of rose spots. Five deaths were due to the virulence of the typhoid poison, the vital powers being overwhelmed. In one of these cases the heart beats, as counted with the stethoscope, reached 240 per minute six or seven days before death, and ranged between

170 and 200 for days in spite of strychnine and whiskey, pushed to the limit of tolerance.

Thrombosis of femoral artery, in its whole extent, was responsible for one death. This appeared just as convalescence was beginning, and produced gangrene of foot and l-g, extending to within three inches of knee. This case was seen by Dr. Hunter McGuire, and the limb amputated by him seventeen days after gangrene began, but death occurred eight days after operation.

Three young ladies died at home. One of these had gone through the attack at the College, and had been free from fever for ten days before she was allowed to go home. She died there twelve or fourteen days after reaching home. I have not the history of the other cases.

Dr. Lewis states, in the HEALTH BULLETIN for December, that three physicians in the State had written him, expressing the opinion that *all* the cases of fever at the College had been typhoid. In view of the large number of typhoid cases this opinion is plausible, and is perhaps shared by others who had no opportunity to see the patients.

But the clinical history shows very plainly, I think, that there were two distinct diseases at work, overlapping each other in point of time, and in a few instances successively affecting the same patient. I give a brief summary of some typical cases of each disease:

Miss R.—Taken sick October 17th, chill; followed by high temperature, no intermission. Purgative dose of calomel, and quinine, in full doses, during remission. Discharged October 24th. No recurrence.

Miss P.—Taken sick October 31st. Same history as above; same treatment. Discharged November 15th. No recurrence.

Miss J.—Chill, November 4th, intermittent; anti-malarial treatment. Discharged November 8th. No relapse.

Miss B.—Chill, October 26th, continued

fever; treatment same as in case of Miss R. Discharged November 2d. No relapse.

Miss K.—Chill, October 29th, continued fever; same treatment. Discharged November 7th. No relapse.

Miss W.—Chill, October 30th, continued fever; same treatment. Discharged November 17th and went home on November 19th. No relapse.

Miss R.—Chill, November 4th; same history and treatment. Discharged November 15th. No relapse.

Miss L.—Chill, November 8th. Discharged November 15th. No relapse, and went home on 20th. December 5th, two weeks later, developed typhoid fever at home.

The symptoms in all of these cases, the duration of the attack, the uniform and prompt recovery under anti-malarial treatment, all prove unmistakably their malarial character, and but for the fact that typhoid fever happened to develop about the time the malaria was disappearing, both from the College and community, no physician would think of questioning the diagnosis.

There were, in all, 71 cases of malaria, like those reported above, lasting from four to sixteen days, with one death, caused by heart failure, due to valvular disease.

A few of these malarial cases afterwards had typhoid fever, as shown by the following records:

Miss T. had several chills in September, before coming to the College, and they continued to recur during October, as she neglected to take medicine except for two or three days after each chill. On November 9th and 11th she had chills, which were evidently prodromal, as her fever continued in spite of quinine, and on the 16th she was put on treatment for continued fever. November 21st the typhoid eruption appeared, and case terminated fatally, November 29th, from hemorrhage.

Another case had chills and all the symptoms of remittent fever from October 28th to November 9th, when temperature was normal. November 11th temperature was 99.5° and continued to rise a little each day until the 17th, when she had a severe chill, followed by a temperature of 104.8°. The rash appeared abundantly on November 22d, and this was one of our most malignant typhoid cases, the temperature reaching 106.4° in spite of baths, packs, etc. On December 10th the rectal temperature was 99° and continued low until December 13th, when she again had a severe chill, followed by a temperature of 104°. Believing this chill to be malarial, she was given cinchonidine sulph. (she could not take quinine) as soon as temperature began to decline, with the result that temperature was normal in thirty-six hours, and patient recovered. Here the malarial germ had evidently lain dormant for weeks, and re-asserted itself as soon as the typhoid poison had disappeared. This case was a second attack of typhoid fever, the young lady having had a very severe attack in '98.

Another case, Miss R., was strikingly like the preceding, except that the chill came after two days of normal temperature, and the succeeding fever lasted for sixty hours.

Both of these young ladies came to the College from malarial localities, and were probably thoroughly saturated with the poison.

Miss P. had chills from October 6th to November 10th, then fever became continuous, and typhoid eruption appeared November 22d. Case of ordinary severity was discharged December 14th. In this case, judging from time at which the eruption appeared, typhoid fever began not earlier than November 10th, while she had been sick for five weeks at that date, having a chill the day she first reached the College.

These are specimen cases, which demon-

strate the fact that the two diseases were present at the same time, and in eight or nine instances in the same patients.

Accepting this as proven, it is not surprising that we should have hesitated to diagnose typhoid fever before November 18th. The records show that every case of typhoid which remained, and was treated at the College, began to be sick subsequent to November 6th, and four-fifths of them were taken sick on November 9th, 10th, 11th and 12th. The typhoid eruption, which was the first positively differential sign we had, was first seen on the night of 17th November on one case, and on two the next morning. We found later that this eruption appeared almost invariably on the eleventh or twelfth day of disease, reckoning from the date of going to bed, and this enabled us to fix, with some accuracy, the beginning of the typhoid outbreak, as the eruption rarely, if ever, appears later than the twelfth day of disease, and usually from the seventh to tenth day.

There were a number of unusual complications, showing the severity and malignancy of the epidemic. Practically, all of the cases were severe, more than half malignant. A weak heart appeared early in all the cases, even before the diagnosis was clear, requiring the use of heart tonics before the end of the first week. The tendency to hemorrhage was also very marked. It occurred in sixteen cases, four of them dying from this cause. The temperature ranged very high, as would be expected in such severe cases, reaching in one case 106.4° and in several instances touching 106°.

Periostitis occurred in one case; in another, gangrene of skin and cellular tissue, not due to pressure or any other apparent cause. Multiple cellular abscesses occurred in several cases, in one case seriously retarding convalescence. They appeared on all parts of the body, first as hard, painful

spots, not discolored, would gradually soften and require lancing. They healed very slowly. Obstinate vomiting was present in two or three cases, resisting all remedies, and in one instance was almost continuous until death. The excessive tremor in a few of the cases also showed the depth of the ulcerative process in the intestines.

Strange to say, constipation was the rule in all the cases, in spite of their severity; while, on the other hand, marked tympanitis was present in only six or eight cases. The almost invariable presence of the eruption was also an unusual feature, as in my experience with typhoid fever heretofore its absence has been the rule. Disinfection was rigid and thorough, both during the outbreak and since. Every room in all the buildings, including offices and recitation rooms, was filled with formaldehyde gas, the walls repainted or calsomined, wood work scrubbed with bichloride solution and repainted. The mattresses were all burned, and wooden bedsteads replaced by iron ones.

All the wells were condemned and filled, a large filter for the city water installed, with sterilizers to further purify the drinking water, so that all danger of a recurrence of such a calamity is removed.

We were aided in the treatment of the patients by several physicians from different sections of the State, who visited the College and saw the sick and gave us the benefit of their experience. Dr. Scott, of this city, also rendered valuable assistance by taking charge at night, and thus relieving Dr. Gove.

The unselfishness and devotion of both faculty and students were beyond all praise. In the early and trying days of the epidemic they attended to their daily duties, while devoting all spare time, and all of the night, to watching over and caring for the sick, and this was continued without protest or hesitation until trained nurses could be secured. A number of ladies from the town also volunteered their services and rendered very efficient aid as long as it was needed.

Review of Diseases for January, 1900.

EIGHTY-THREE COUNTIES REPORTING.

Ninety counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of January the following diseases have been reported from the counties named:

MEASLES.—Alamance, 26; Ashe, 15; Bertie, several; Caswell, several; Chatham, 25; Columbus; Craven, 10; Durham, very many; Edgecombe, 3; Franklin, in nearly all parts; Granville, many; Greene, 24; Halifax; Harnett, a few; Hertford, many; Iredell, 12; Johnston, 1; Martin, 25; Mecklenburg; Moore, 3; Northampton, many; Orange, several; Pitt, in all parts; Rutherford, many; Surry, 4; Union, 6; Vance, all; Wake, 30; Washington; Watauga; Wayne, 20; Wilson, epidemic; Yadkin, 2—33 counties.

WHOOPIG-COUGH.—Bladen; Caswell, several; Cleveland, many; Craven, 24; Duplin; Granville; Halifax; Henderson, 13; Johnston, 2; Martin, 50; Mecklenburg, 1; Stanly, several; Union, 4; Wake, 2; Washington; Watauga; Wilson—17 counties.

SCARLET FEVER.—Iredell, 3; Jones, 3; Moore, 3; New Hanover, 3; Union, 1; Wake, 2—6 counties.

DIPHTHERIA.—New Hanover, 3.

TYPHOID FEVER.—Ashe, 2; Cabarrus, 12; Caldwell, 3; Caswell, 1; Greene, 2; Harnett, a few; Johnston, 1; McDowell, 1; Macon, 1; Madison, 2; Martin, 5; Mecklenburg;

Mitchell, 8; New Hanover, 1; Orange, 1; Pender, 1; Robeson, a great many; Stanly, several; Swain, 2; Warren, a few; Wayne, 6; Wilson, 1—19 counties.

MALARIAL FEVER.—Gaston, a few cases; Iredell; Lenoir; Onslow, a few; Robeson; Wake; Wilson—7 counties.

MALARIAL FEVER, PERNICIOUS.—Iredell, 1; Wake, 1.

MALARIAL FEVER, HEMORRHAGIC.—Wilson, 1.

INFLUENZA.—Ashe; Bladen; Caldwell; Caswell; Columbus; Craven; Currituck; Greene; Henderson; Iredell, general; Jackson; Macon; Mecklenburg; New Hanover, general; Northampton, general; Richmond; Rutherford; Sampson, general; Stokes, general; Swain; Wake; Washington, general—22 counties.

DYSENTERY.—Jackson.

MUMPS.—Bertie; Halifax; Pitt; Warren; Watauga.

PLEURISY.—Person.

PNEUMONIA.—Alamance; Burke; Catawba; Chowan; Currituck; Gaston, general; Granville, general; Greene, general; Harnett; Haywood; Hertford; Lenoir; Martin; Mecklenburg, Moore; Onslow; Orange; Person; Richmond; Rutherford; Swain; Transylvania; Wake; Washington, general; Wilson, general—25 counties.

ROSEOLA.—Chatham, 5; Gaston.

VARICELLA.—Chatham, a few cases; Craven; Halifax.

SMALL-POX.—Alamance, 8; Bertie, 3, white, one death; Chatham, 9, no deaths; Currituck, 6, in one family, convalescent; Davidson, 26 colored, 1 white, one death; Davie, 7, in one family, no death; Edgecombe, 2; Gates, 13, only a small per cent. of the people vaccinated; Halifax, none in January, 27 should have been reported for December instead of 17; Hertford, 7, one death; Johnston, 1; Mecklenburg, 3; Moore, 1; New Hanover, 5; Northampton, 11;

Orange, 1; Randolph, 8; Richmond, 27; Robeson, 1; Stanly, 7; Stokes, 4; Surry, 70, isolation and quarantine now being carried out; Union, 2—23 counties.

CHOLERA, IN CHICKENS.—Haywood, Macon, Wake.

CHOLERA, IN HOGS.—Columbus, Yadkin.

HYDROPHOBIA, IN DOGS AND HOGS.—Watauga.

PINK-EYE, IN HORSES.—Washington.

No diseases are reported from Alexander, Beaufort, Buncombe, Carteret, Cherokee, Clay, Dare, Forsyth, Hyde, Lincoln, Nash, Pasquotank, Perquimans, Polk and Wilkes.

No reports have been received from Alleghany, Anson, Cumberland, Guilford, Rockingham, Rowan and Yancey.

Summary of Mortuary Reports for January, 1900.

(NINETEEN TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	82,051	55,099	137,150
Aggregate deaths.....	73	77	150
Representing temporary annual death rate per 1,000	10.7	16.8	13.1

Causes of Death.

Typhoid fever	2	0	2
Whooping-cough.....	0	2	2
Measles	0	2	2
Pneumonia.....	7	12	19
Consumption	6	7	13
Brain diseases.....	9	1	10
Heart diseases.....	9	1	10
Neurotic diseases..	1	0	1
Diarrhoeal diseases	1	2	3
All other diseases..	35	48	83
Accident.....	3	2	5
	73	77	150
Deaths under five years.....	14	17	31
Still-born.....	8	8	16

Mortuary Report for January, 1900.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrheal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.		Deaths under five years. Still-born.
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	
Asheville	W.	8,000	13,000	12.0	14.8	...	...	...	...	...	...	1	1	...	...	...	1	...	...	...	...	16*	4	2
Dr. M. H. Fletcher.	C.	5,000		19.2		...	...	...	...	...	...	2	1	...	...	...	5	...	...	...	...	...	1	1
Charlotte	W.	19,176		2.5	7.0	1	...	...	...	...	...	2	...	...	1	...	...	...	...	...	...	4	17	1
Dr. F. O. Hawley.	C.	9,824	29,000	16.2		...	...	...	...	...	...	1	...	1	...	...	9	...	...	...	...	13	4	1
Durham	W.	4,000		24.0	18.0	...	...	...	...	...	...	1	1	...	2	...	...	...	...	...	...	8	9	1
Dr. Z. T. Brooks.	C.	2,000	6,000	6.0		...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	1	...	...
Henderson	W.	2,250		5.3	11.3	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	4	...
Dr. W. J. Judd.	C.	2,000	4,250	18.0		...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	3	4	1
Hillsboro	W.	400		30.0	17.1	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	...
Dr. C. D. Jones.	C.	300	700	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...
Lenoir	W.	1,250		0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Dr. Albert Houck.	C.	250	1,500	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Marion	W.	800		0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Dr. B. A. Cheek.	C.	400	1,200	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Monroe	W.	1,800		0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Dr. J. M. Blair.	C.	600	2,400	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Oxford	W.	1,200		20.0	10.4	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	2	2	...
Dr. S. H. Cannady.	C.	1,100	2,300	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...
Raleigh	W.	11,000		10.9	13.8	...	...	...	...	...	...	1	1	3	...	...	5	...	...	...	...	10	23	2
T. P. Sale, Clerk B. H.	C.	9,000	20,000	17.3		...	...	...	...	...	...	1	...	...	...	...	11	...	...	...	...	13	2	...
Rockingham	W.	1,500		0.0	18.0	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	0	3	...
Dr. J. M. Covington.	C.	500	2,000	72.0		...	...	...	...	...	1	...	1	...	...	...	...	1	...	...	...	3	...	...
Rocky Mount	W.	1,600		15.0	18.5	...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	2	4	...
Dr. G. L. Wimberley, Jr.	C.	1,000	2,600	24.0		...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...
Salem	W.	4,100		14.6	15.8	...	...	...	...	...	...	1	1	...	...	...	3	...	...	...	...	5	6	...
S. E. Butner, Mayor.	C.	450	4,550	26.7		...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	1	1	...
Salisbury	W.	6,000		18.0	22.7	...	...	...	...	...	...	1	1	1	1	...	4	1	...	...	...	9	17	3
Dr. W. W. McKenzie.	C.	3,000	9,000	32.0		...	...	...	...	...	...	1	...	...	...	...	2	4	...	...	...	8	2	...
Scotland Neck	W.	775		15.5	10.0	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	1	...
J. A. Perry, Mayor.	C.	425	1,200	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...
Tarboro	W.	2,000		0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Dr. L. L. Staton.	C.	1,000	3,000	0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...
Washington	W.	3,500		13.8	12.0	...	...	...	...	...	...	...	1	...	...	...	3	...	...	...	...	4	6	2
Dr. P. A. Nicholson.	C.	2,500	6,000	9.6		...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	...	2	...	...
Weldon	W.	700		0.0	16.5	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...
J. T. Gooch, Mayor.	C.	750	1,450	32.0		...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	2	1	...
Wilmington	W.	12,000		15.0	16.0	1	1	...	...	...	...	2	1	1	...	...	9	...	...	...	...	15	36	1
Dr. W. D. McMillan.	C.	15,000	27,000	16.8		...	...	...	...	...	...	6	2	...	...	...	12	1	...	...	...	21	5	5
Wilson	W.	2,500		19.2	.....	...	...	...	...	...	...	...	1	...	...	...	3	...	...	...	...	4	...	...
Dr. W. S. Anderson.	C.	2,300	4,800	.....		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the whole number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*In addition five non-residents died of consumption.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Lenoir	Dr. W. T. Parrott.
Alexander	Dr. T. F. Stevenson.	Lincoln	Dr. W. L. Crouse.
Alleghany	Dr. B. E. Waddell.	McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe.....	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin.....	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg.....	Dr. C. M. Strong.
Bladen.....	Dr. Newton Robinson.	Mitchell.....	Dr. C. E. Smith.
Brunswick	Dr. D. B. McNeill.	Montgomery	
Buncombe.....	Dr. E. R. Morris.	Moore.....	Dr. Gilbert McLeod.
Burke.....	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus.....	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell.....	Dr. A. F. Houck.	Northampton.....	Dr. H. W. Lewis.
Camden.....		Onslow.....	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange.....	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico.....	
Catawba.....	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Ayddlett.
Chatham.....	Dr. H. T. Chapin.	Pender.....	Dr. George F. Lucas.
Cherokee.....	Dr. J. F. Abernathy.	Perquimans	Dr. C. C. Winslow.
Chowan.....	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. J. M. Sullivan.	Pitt.....	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus.....	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven.....	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland.....	Dr. J. Vance McGougan.	Richmond.....	Dr. J. M. Covington.
Currituck.....	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson.....	Dr. Joel Hill.	Rowan.....	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford.....	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham.....	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly.....	Dr. J. W. Littleton.
Forsyth.....	Dr. John Bynum.	Stokes	Dr. W. L. McCannless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston.....	Dr. J. H. Jenkins.	Swain.....	Dr. R. L. Davis.
Gates.....	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham.....	Dr. R. J. Orr.	Tyrrell.....	
Granville.. ..	Dr. S. H. Cannady.	Union.....	Dr. J. E. Ashcraft.
Greene.....	Dr. Joseph E. Grimsley.	Vance.....	Drs. W. T. & G. Cheat-
Guilford.....	Dr. R. L. Rierison.		ham.
Halifax	Dr. I. E. Green.	Wake.....	Dr. P. E. Hines.
Harnett.....	Dr. O. L. Denning.	Warren.....	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson.....	Dr. J. G. Waldrop	Watauga.....	Dr. E. F. Bingham.
Hertford	Dr. John W. Tayloe.	Wayne.....	Dr. W. J. Jones.
Hyde	Dr. E. H. Jones.	Wilkes.....	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson.....	Dr. W. S. Anderson.
Jackson.....	Dr. Wm. Self.	Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones.....	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough ----- Typhoid Fever -----

Measles ----- Typhus Fever -----

Diphtheria ----- Yellow Fever -----

Scarlet Fever ----- Cholera -----

Pernicious Malarial Fever ----- Smallpox -----

Hemorrhagic Malarial Fever ----- Cerebro-spinal Meningitis -----

What have been the prevailing diseases in your practice?

Has any epidemic occurred among domestic animals? If so, what?

What is the sanitary condition of your section, public and private?

General Remarks: -----

----- M. D.

BULLETIN

OF THE

North Carolina Board of Health.

Published Monthly at the Office of the Secretary of the Board, Raleigh, N. C.

GEO. G. THOMAS, M. D., *Pres.*, Wilmington.
S. WESTRAY BATTLE, M. D., Asheville.
HENRY W. LEWIS, M. D., Jackson.
HENRY H. DODSON, M. D., Milton.

C. J. O'HAGAN, M. D., Greenville.
J. L. NICHOLSON, M. D., Richlands.
ALBERT ANDERSON, M. D., Wilson.
A. W. SHAFFER, SAN. ENG., Raleigh.

RICHARD H. LEWIS, M. D., *Secretary and Treasurer*, Raleigh.

VOL. XIV.

MARCH, 1900.

No. 12.

The Legality of Compulsory Vaccination.

Our Supreme Court has just rendered a decision affirming the right of county and municipal authorities to enforce compulsory vaccination—greatly to our satisfaction, for an adverse decision would have been fraught with the gravest consequences to our people. It gives us therefore much pleasure to print below the able opinion of the Court as delivered by Justice Clark. Bearing as it does upon an always important and now especially interesting subject, we hope the newspapers of the State will give it wider publicity by printing it in their columns:

No. 169.

N. C. SUPREME COURT—Feb. Term, 1900.

Alamance County.

STATE, Appellant, *v.* W. E. HAY.

Attorney-General for the State.

Defendant not represented.

Clark, J. Chapter 214 of the Laws of 1893 is a well considered and carefully drawn statute for the preservation of the public

health. Section 23 thereof, which is specifically in regard to vaccination, contains among other provisions this clause: "The authorities of any city or town or the board of county commissioners of any county may make such regulations and provisions for the vaccination of its inhabitants under the direction of the local or county board of health or a committee chosen for the purpose, and impose such penalties as they deem necessary to protect the public health." There is no provision of the Constitution which forbids the Legislature so to enact, and it is indeed an exercise of that governmental police power to legislate for the public welfare, which is inherent in the General Assembly, except when restrained by some express constitutional provision.

Salus populi suprema lex, "the public welfare is the highest law," is the foundation principle of all civil government. It is the urgent cause why any government is established, for, as Burke says, "any government is a necessary evil." It is, however, a much lesser evil than the intolerable state of things

which would exist if there were no government to bridle the absolute right of every man to do "that which seems right in his own eyes," like the Israelites in days of Micah. The above maxim, quoted from Lord Bacon, is placed appropriately first by Broom in his treatise on "Legal Maxims" with this just observation, "There is an implied assent on the part of every member of society that his own individual welfare shall, in cases of necessity, yield to that of the community, and that his property, liberty and life shall under certain circumstances be placed in jeopardy or even sacrificed for the public good." This observation, which is almost a literal translation from Grotius, he fortifies by quotations from Montesquieu, Lord Hale and many opinions from both sides of the Atlantic. But it needs none, for it is every-day common sense that if a people can draft or conscript its citizens to defend its borders from invasion it can protect itself from the deadly pestilence that walketh by noonday by such measures as medical science has found most efficacious for that purpose. We know as an historical fact that prior to the discovery 101 years ago of vaccination by Edward Jenner, small-pox often destroyed a third or more of the population of a country which it attacked, and so futile was every precaution and the most careful seclusion, that the greatest sovereigns fell victims to this loathsome disease, which Macaulay has styled "the most terrible of all ministers of death." If this was so in days of imperfect communication, the present rapid means of intercourse between most distant points would so spread the disease as to quickly paralyze commerce and all public business, if government could not at once stamp out the disease by compelling all alike, for the public good as much as for their own, to submit to vaccination. Statistics taken by governmental authority show that while 400 out of every 1,000 unvaccinated persons exposed to the contagion are

attacked by it, less than two in a thousand take the disease when protected by vaccination within a reasonable period. There are those, notwithstanding these well ascertained facts, who deny the efficacy of vaccination, as there are always some who will deny any other result of human experience, however well established, but the Legislature, acting in their best judgment for the public welfare, upon the information before them, has deemed vaccination necessary for public protection, and their decision, being within the scope of their functions, must stand until repealed by the same power.

The power of the Legislature to authorize county and municipal authorities to require compulsory vaccination has been exercised by nearly every State, and has been recently sustained by the highest courts of two of our sister States. *Morris v. Columbus*, 102 Ga., 792; *Blue v. Beach* (Supreme Court, Indiana, February 1, 1900), 56 N. E. Rep., 89, and there are no decisions to the contrary. In reply to the argument that such exercise of power by the Legislature may in some cases infringe upon individual rights, Cobb, J., in the Georgia case just cited, well says: "No law which infringes upon the natural rights of man can be long enforced. Under our system of government, the remedy of the people, in that class of cases where the courts are not authorized to interfere, is at the ballot-box. Any law which violates reason and is contrary to the popular conception of right and justice, will not remain in operation for any length of time, but courts have no authority to declare it void merely because it does not measure up to their ideas of abstract justice. The motive which doubtless actuated the Legislature in the passage of the act now under consideration was that vaccination was for the public good. In this the General Assembly is sustained by the opinion of a great majority of the men of medical science, both in this country and in Europe."

But even if we were of opinion with the small number of medical men who contend that vaccination is dangerous to health and not a preventive of the disease, the court is not a paternal despotism, gifted with infallible wisdom, whose function is to correct the errors and mistakes of the Legislature. *Brodnax v. Groom*, 64 N. C., 250. Our people are self-governing, and themselves correct the mistakes of their representatives. The function of the courts is to construe and apply the laws, and they can hold a statute nugatory only when plainly and clearly violative of some provision of the organic law which has restrained the legislative power. *Sutton v. Phillips*, 116 N. C., 502; *White v. Murray*, at this term.

Nor does section 23 of the act require that the Board of Aldermen shall pass such ordinance in conjunction with the Board of Health (as defendant contends). It merely provides that the execution of the ordinance, *i. e.*, the vaccination, shall be under the direction of the local board of health or a committee appointed by the alderman.

While the Legislature has power to authorize municipal bodies to provide compulsory vaccination, and the defendant did not comply with the ordinance enacted by the town of Burlington, in pursuance of such authority, though afforded opportunity to do so, it is true that there may be some conditions of a person's health when it would be unsafe to submit to vaccination, and which therefore would be a sufficient excuse for non-compliance, but it does not vitiate the ordinance that such exception is not provided for and specified therein. It is not a defence that a person *bona fide* believes that it will be dangerous for him to be vaccinated or believes that he is already sufficiently protected by former vaccination, nor would the opinion of his personal physician on either point be conclusive (though it would naturally have weight with the

jury), for there may be evidence or circumstances tending to the contrary. Indeed, as to a former vaccination being sufficient protection, the opinion of the official physician supervising the vaccination should be presumptively correct. That which would relieve from a compliance with the ordinance is a matter of defence, the burden of which is upon the defendant, and is a fact to be found by the jury. The special verdict is ambiguous and defective in this particular and is set aside. Let there be a new trial.

Small-pox and Municipal Authorities.

All cities and towns are, naturally and properly, very loth to advertise anything that is likely to interfere with their trade. In consequence there is a tendency, whenever there happens to be a difference of opinion among the doctors as to whether an eruptive disease is small-pox or chicken-pox, to agree with the latter, and to announce to the world in the local papers that there is no small-pox in X, but that it is nothing but chicken-pox, and no one need hesitate to visit the town. Having recently called attention to the fact that whenever an impartial expert has seen the cases he has almost invariably pronounced them small-pox, we do not propose to dwell further upon this aspect of the subject. We propose to look at it for the present solely from the point of view of the trade of the town.

At first, in the beginning of the epidemic, the claim of chicken-pox may have been accepted by some, but now the people have "caught on." The claim has too often proved to be unfounded, and the outside public greet such assertions with a smile of incredulity. No matter how sincere the physicians and town authorities may be in their belief that the disease is chicken-pox—and we surely do not intend to intimate that they are ever otherwise than sincere—other

people do not believe it. The result of this is liable to be distrust of all subsequent statements on the subject and a hesitancy in accepting the final announcement that there is no longer any small-pox in the town—the admission of the true nature of the disease having, after much resistance, been made. So that the restraint upon trade is continued much longer than legitimately it should be. According to our belief, the towns that suffer least from outbreaks of small-pox are those which promptly recognize and announce the disease, and which provide all the necessary facilities for taking care of it and preventing its spread. It is easy to understand how one would much prefer to visit such a community, knowing the authorities to be alert and on the watch for all cases, immediately segregating them in a pest hospital and all persons exposed to them in a house or camp of detention, than to take his chances of rubbing up against a case of the same disease, even if it is called “chicken-pox,” in the railway station, the post-office, or on the street, in another town where it has been allowed free reign under the name of chicken-pox, causing widespread infection. And besides, when a town of the former class announces the final disappearance of the disease it is immediately accepted and the check upon trade is at once removed.

We now turn to another aspect of the subject, and that is to a consideration of our duty in the premises.

The powers of the State Board of Health are purely advisory, and we cannot therefore compel a community to take care of its own people, that duty being delegated by the law to the local authorities, but we have the power, and it is our plain duty, to do all we can to protect the people of the State generally against a community that permits itself to become a menace to the public health. When, therefore, a town refuses or

neglects to strictly quarantine under guard its own cases and suspects as well, and permits them to escape to form new *foci* of the disease in other communities, we shall feel compelled to notify the people directly and through the public prints of the facts and advise that said town be quarantined against. It is unnecessary to say that such advice would not promote the trade of that town. It is no excuse to say that there is doubt about the diagnosis, for the sanitary rule that the same precautions should be taken against doubtful cases as against unquestioned small-pox is inexorable. When, however, the disease is admitted to be small-pox, and suspects, through inexcusable carelessness or deliberately to save the town trouble and expense, are allowed to escape, utterly regardless of the welfare of other people, our duty becomes urgent.

We would dislike very much to take such action, but a conscientious regard for our duty would admit of no alternative. We hope that we may not be called upon to act.

The National Pure Food and Drug Congress.

Having been appointed by the President of the Board as its representative, and by His Excellency, the Governor, as a delegate at large from the State, we attended the Third Annual Meeting of the National Pure Food and Drug Congress, which assembled in Washington City on Wednesday, the 7th inst.

Delegates representing nearly every interest concerned to the number of about three hundred were present from all parts of the country, including California, and much interest was shown in the proceedings. It was a working body, having night as well as day sessions, and the discussions generally were quite lively, and in some instances what might be called warm. The Congress

was addressed by Secretary of Agriculture Wilson; Senator Mason, of Illinois, and several members of the House of Representatives, including the Hon. Messrs. Atwater, of our own State; Brosins, of Pennsylvania, author of the Brosin's Pure Food bill; the famous Champ Clark, of Missouri; Latimer, of South Carolina, and others. They all expressed themselves as favorable to legislation of the character desired. It is perhaps well to explain just here that the two principal objects aimed at are the absolute prohibition of the sale of articles containing elements dangerous to health and the proper labeling of all articles exposed for sale in this country—not so much to prevent non-injurious adulterations as to prevent fraud against the consumer, by requiring the label on every package to set forth its true character. For example, the sale of oleo-margarine is not forbidden, but its sale as *butter* is. Similar provisions apply to drugs in general, but patent medicines are not even named in either of the proposed bills. This omission we were informed was due to the belief that any attempt to regulate them would insure the defeat of the bill. It is a sad commentary upon the state of public opinion to even intimate that the National Legislature of this great country of ours is practically under the control of the manufacturers of secret nostrums, but there seems to be some foundation for the belief.

The principal interest centered around the discussion of the two bills that have been introduced in the House—the Brosins and the Babcock. The essential difference between them is in the administrative feature. In the former the execution of the law is entrusted to the Department of Agriculture, as now constituted, the Chief Chemist of that department being in immediate control under the Secretary. In the latter a separate bureau in the same department is created with a special Food Commissioner at its

head, to be appointed by the President, to have a salary of \$5,000 a year and the privilege of appointing all his subordinates of every description, excepting alone the Chief Chemist. The contest between the advocates of the two bills lasted several hours and developed considerable heat, the remarks at times being decidedly acrimonious. The Brosins bill finally won by a good majority, and was then adopted unanimously as the choice of the Congress. The following morning the Committee on Commerce, Hon. Mr. Hepburn, Chairman, gave us a hearing, at which representatives of the different interests were given five minutes each in which to present their views.

In studying the feeling displayed in the discussions of the rival bills, we came to the conclusion that it was probably due to the expectation on the part of some at least, to get office under the one advocated. We hope this supposition is true, for to secure legislation of any kind in these days somebody must watch it and push it, and those who get a bill through will have earned a reward. The all-important thing is to make a start—to get some kind of national or interstate pure food law which can be improved hereafter.

Review of Diseases for February, 1900.

EIGHTY-EIGHT COUNTIES REPORTING.

Ninety-two counties have Superintendents of Health.

Except in the case of the more contagious and dangerous diseases, the Superintendent has, as a rule, to rely upon his own information alone, since few physicians can be induced to report cases of non-contagious diseases to him.

Where the number of cases is not given, or the prevalence of a disease otherwise indicated, its mere presence in the county is to be understood as reported.

For the month of February the following diseases have been reported from the counties named:

MEASLES.—Alamance, 30; Alleghany; Ashe, 12; Caswell, several; Chatham, many; Cherokee, several; Clay, 3; Cleveland, a few; Craven, 20; Duplin; Durham, a few; Edgecombe, 15; Graham, 30; Granville, many; Greene, 50; Halifax; Harnett, many; Henderson, general, mild; Hertford, 4; Iredell, 5; Jones, 2; Martin, 20; Mecklenburg, general; Montgomery, 10; Nash, epidemic; Orange, many; Pasquotank, 1; Perquimans, 2; Pitt; Rowan, 2; Sampson, a few; Swain, 4; Vance, in all parts; Wake, 42; Warren, many; Watauga, in all parts; Wayne, 25; Wilkes; Wilson, in all parts; Yadkin—40 counties.

WHOOPIING-COUGH.—Ashe, 5; Caldwell, 2; Cleveland, several; Columbus; Craven, 16; Duplin, many; Durham, a few; Graham, 7; Granville; Greene, 5; Halifax; Martin 20; Mecklenburg; Nash, epidemic; Pitt; Richmond, 38; Rowan, 6; Stanly; Transylvania, 3; Warren, many; Watauga, general; Wilkes—22 counties.

SCARLET FEVER—Jones, 1; Mecklenburg, 1; Wake, 2.

DIPHTHERIA.—Ashe, 2; Mecklenburg, 1.

TYPHOID FEVER.—Alamance, 1; Alleghany; Ashe, 2; Burke, 2; Cabarrus, 8; Caldwell, 3; Greene, 1; Harnett, a few; Madison, 4; Mecklenburg; Mitchell, 10; Montgomery, 1; Perquimans, 1; Randolph, 3; Robeson, a few; Rowan, 4; Stanly; Union; Warren; Wilkes—20 counties.

MALARIAL FEVER.—Dare; Gates, a few; Halifax; Hyde; New Hanover; Onslow, a very little; Person—7 counties.

MALARIAL FEVER, PERNICIOUS.—Dare, 1; New Hanover, 1; Person, 1.

MALARIAL FEVER, HEMORRHAGIC.—Hyde, 3.

INFLUENZA.—Ashe, general; Beaufort, general; Carteret; Caswell, general; Chowan,

general; Craven; Currituck; Gaston, general; Greene; Henderson; Iredell, general; Jackson; Macon, general; Madison; Martin, general; Mecklenburg, general; New Hanover, general; Northampton, general; Randolph; Robeson; Stokes, general; Swain; Wake, general; Washington, general—24 counties.

PNEUMONIA.—Alamance, a few cases; Ashe, general; Beaufort; Caldwell, 40 cases in one section; Carteret; Catawba; Chowan, general; Clay; Dare, 1; Gaston, general; Gates, several; Greene; Harnett; Henderson; Jackson; Madison; Martin, general; Moore; Northampton, much; Onslow; Pasquotank; Perquimans, general; Person; Pitt; Robeson; Stanly; Swain; Wake, general; Washington, general; Wilkes; Wilson, general—31 counties.

MUMPS.—Alleghany; Duplin; Pitt; Vance; Watauga.

ROSEOLA.—Union, epidemic.

RÖTHELN.—Lincoln; Sampson.

VARICELLA.—Halifax; Martin; Sampson; Union.

SMALL-POX.—Alamance, 13; Alexander, 6, with many exposures; Buncombe, 17, under control; Caswell, 4; Chatham, 9; Cherokee, 1; Davidson, 3; Durham, 1; Forsyth, 8; Gaston, 2; Gates, 1; Granville, 1; Guilford, 160, subsiding; Haywood, 15; Hertford, 6; Mecklenburg, 6; Moore, 4; Nash, 2; New Hanover, 7; Orange, 4; Randolph, 6; Richmond, 28, mostly mild, one death; Rowan, 6, convalescent; Rutherford, 5; Stanly, 20, under control; Stokes, 12; Surry, 8; Union, 3; Warren, 1; Washington 1—30 counties.

CHOLERA, IN FOWLS—Chatham; Jackson; Wake.

CHOLERA, IN HOGS.—Columbus; McDowell.

HYDROPHOBIA, IN DOGS—Caswell; Wake.

No diseases are reported from Bladen, Davie, Franklin, Johnston, McDowell, Polk.

No reports have been received from Anson, Brunswick, Cumberland and Lenoir.

The Practice of Vaccination.

The considerable prevalence of small-pox in various parts of the country emphasizes anew the necessity of attention to details in the practice of the simple operation of vaccination. There are indications that a controversy concerning the relative excellence of glycerinated lymph and dried lymph is likely to arise from the failure of some physicians to succeed in imparting vaccinia with either the one or the other of these two forms of vaccine. It is plain, however, that any such question cannot be settled on testimony from those who, using only the glycerinated lymph, have met with disappointment, or from those who, employing only the dried lymph, have had no better results. Only those who have used both forms on a large scale can furnish trustworthy data for the purpose. Moreover, they must be persons who observe the necessary details in the operation of vaccination.

Vaccine virus is not such a perishable article as is generally imagined, provided it is properly stored and cared for. With sufficient care, there is no difficulty in keeping dried lymph for months, practically unimpaired. It is not necessary to keep it at a very low temperature, but it is imperative that it should be protected against moisture if it be exposed to warmth for any considerable length of time. Theoretically and according to European experience, liquid lymph also, with adequate sterilizing and sealing precautions, should not be difficult of preservation for long periods, but as yet we have had no great experience with it in this country. Much of it is being used at the present time, however, and it would be very heartily to be regretted if it were generally employed without the observance of that care which is necessary to success. We know of an instance in which a purveyor of vaccine received a complaint from a practi-

tioner who reported failure with a specimen of dried lymph with which the recipient of the complaint had furnished him, asseverating that the fault could not have been his, for he had taken all possible pains—he had even gone to the trouble to boil the quill. This happened many years ago, and of course it was not even at that time a fair index of the information regarding vaccination generally possessed by physicians. But it is not so much ignorance as it is carelessness that is at the bottom of many men's lack of satisfactory success in the practice of vaccination, and that carelessness, we fear, is incurable. Those men's results should be eliminated when it comes to summing up any data bearing upon the subject.—*N. Y. Medical Journal*.

Summary of Mortuary Reports for February, 1900.

(EIGHTEEN TOWNS).

Only those towns from which certified reports are received are included.

	White.	Col'd.	Total.
Aggregate population	61,875	45,075	106,950
Aggregate deaths...	53	67	120
Representing temporary annual death rate per 1,000	10.3	17.8	13.5
<i>Causes of Death.</i>			
Malarial fever	0	1	1
Measles	0	1	1
Pneumonia	11	13	24
Consumption	8	9	17
Brain diseases.....	2	2	4
Heart diseases.....	1	5	6
Neurotic diseases..	2	1	3
Diarrheal diseases	1	1	2
All other diseases..	27	34	61
Accident.....	1	0	1
	53	67	120
Deaths under five years.....	10	14	24
Still-born.....	2	7	9

Mortuary Report for February, 1900.

TOWNS AND REPORTERS.	RACES.	POPULA- TION.		TEMPORARY ANNUAL DEATH RATE PER 1,000.		Typhoid Fever.	Scarlet Fever.	Malarial Fever.	Diphtheria.	Whooping-cough.	Measles.	Pneumonia.	Consumption.	Brain Diseases.	Heart Diseases.	Neurotic Diseases.	Diarrhoal Diseases.	All Other Diseases.	Accident.	Suicide.	Violence.	TOTAL DEATHS.			
		By Races.	Total.	By Races.	Total.																	By Races.	By Towns.	Deaths under five years.	Still-born.
Asheville	W.	8,000	13,000	7.5	10.2	...	...	...	...	...	...	1	...	...	...	...	...	4	...	...	...	5	11	3	...
Dr. M. H. Fletcher.	C.	5,000		14.4		...	...	...	...	...	...	1	3	1	...	...	...	1	...	...	...	6	1	1	...
Durham	W.	4,000	6,000	18.0	16.0	...	...	...	...	...	...	2	...	...	...	...	...	2	...	...	...	6	8	1	...
Dr. Z. T. Brooks.	C.	2,000		12.0		...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	1	1	1	...
Henderson	W.	2,250	4,250	5.3	14.1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	5	3	...
Dr. W. J. Judd.	C.	2,000		24.0		...	...	...	...	...	...	1	...	...	...	...	...	3	...	...	...	4	2	1	...
Hillsboro	W.	400	700	0.0	0.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Dr. C. D. Jones.	C.	300		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	...	...
Lenoir	W.	1,250	1,500	9.6	8.0	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	1	1	...	...
Dr. Albert Houck.	C.	250		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Marion	W.	800	1,200	30.0	20.0	...	...	...	...	...	...	...	...	...	...	...	...	2	...	...	...	2	2	...	...
Dr. B. A. Cheek.	C.	400		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	...	...	...
Monroe	W.	1,800	2,400	0.0	5.0	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	0	1	...	...
Dr. J. M. Blair.	C.	600		20.0		...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Oxford	W.	1,200	2,300	0.0	10.4	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	2	...	...
Dr. S. H. Cannady.	C.	1,100		21.8		...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Raleigh	W.	11,000	20,000	6.5	10.2	...	...	...	...	...	...	...	3	...	...	...	...	3	...	...	...	6	17	1	1
T. P. Sale, Clerk B. H.	C.	9,000		14.7		...	...	...	...	...	...	1	2	...	...	...	...	7	...	...	...	11	2	2	...
Rockingham	W.	1,500	2,000	8.0	12.0	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	1	2	...	...
Dr. J. M. Covington.	C.	500		24.0		...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Rocky Mount	W.	1,600	2,600	30.0	18.5	...	...	...	...	...	...	1	...	1	...	...	...	2	...	...	...	4	4	...	...
Dr. G. L. Wimberley, Jr.	C.	1,000		0.0		...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Salem	W.	4,100	4,550	17.6	18.5	...	...	...	...	...	...	2	1	...	...	...	...	2	...	...	...	6	7	1	...
S. E. Butner, Mayor.	C.	450		26.7		...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Salisbury	W.	6,006	9,000	6.0	10.7	...	...	...	...	...	...	1	1	...	...	...	...	1	...	...	...	3	8	2	1
Dr. W. W. McKenzie.	C.	3,000		20.0		...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	5	3	...	...
Scotland Neck	W.	775	1,200	0.0	10.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	1	...	...
J. A. Perry, Mayor.	C.	425		28.3		...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Tarboro	W.	2,000	3,000	6.0	8.0	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...
Dr. L. L. Staton.	C.	1,000		12.0		...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Weldon	W.	700	1,450	17.1	24.8	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1	3	...	...
J. T. Gooch, Mayor.	C.	750		32.0		...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Wilmington	W.	12,000	27,000	10.0	16.4	...	...	...	...	...	...	2	...	...	...	...	...	7	1	...	...	10	37	1	...
Dr. W. D. McMillan.	C.	15,000		21.6		...	...	...	...	...	...	4	1	1	1	...	...	20	...	...	...	27	4	2	...
Wilson	W.	2,500	4,800	28.8	22.5	...	...	...	...	...	...	1	1	...	...	...	...	2	...	...	...	6	9	...	...
Dr. W. S. Anderson.	C.	2,300		15.6		...	...	...	...	...	...	...	1	...	...	...	...	1	...	...	...	3	...	...	...

N. B.—The reporters for the cities and towns printed in **Black Type** have signed this certificate: "I hereby certify that this report gives the *whole* number of deaths occurring within the corporate limits during the above month." The figures for population are supplied by the reporters.

*In addition seven non-residents died of consumption.

County Superintendents of Health.

Alamance	Dr. T. S. Faucette.	Lenoir	Dr. W. T. Parrott.
Alexander	Dr. T. F. Stevenson.	Lincoln	Dr. W. L. Crouse.
Alleghany	Dr. B. E. Waddell.	McDowell	Dr. B. A. Cheek.
Anson	Dr. E. S. Ashe.	Macon	Dr. F. L. Siler.
Ashe	Dr. Manley Blevins.	Madison	Dr. Jas. K. Hardwicke.
Beaufort	Dr. P. A. Nicholson.	Martin	Dr. W. H. Harrell.
Bertie	Dr. H. V. Dunstan.	Mecklenburg	Dr. C. M. Strong.
Bladen	Dr. Newton Robinson.	Mitchell	Dr. C. E. Smith.
Brunswick	Dr. D. B. McNeill.	Montgomery	Dr. M. P. Blair.
Buncombe	Dr. E. R. Morris.	Moore	Dr. Gilbert McLeod.
Burke	Dr. J. L. Laxton.	Nash	Dr. J. P. Battle.
Cabarrus	Dr. R. S. Young.	New Hanover	Dr. W. D. McMillan.
Caldwell	Dr. A. F. Houck.	Northampton	Dr. H. W. Lewis.
Camden		Onslow	Dr. E. L. Cox.
Carteret	Dr. F. M. Clark.	Orange	Dr. C. D. Jones.
Caswell	Dr. S. A. Malloy.	Pamlico	
Catawba	Dr. Geo. H. West.	Pasquotank	Dr. H. T. Aydlett.
Chatham	Dr. H. T. Chapin.	Pender	Dr. George F. Lucas.
Cherokee	Dr. J. F. Abernathy.	Perquimans	Dr. C. C. Winslow.
Chowan	Dr. T. J. Hoskins.	Person	Dr. J. A. Wise.
Clay	Dr. J. M. Sullivan.	Pitt	Dr. C. O'H. Laughing-
Cleveland	Dr. B. H. Palmer.		house.
Columbus	Dr. I. Jackson.	Polk	Dr. W. C. Bostic.
Craven	Dr. R. DuVal Jones.	Randolph	Dr. T. T. Ferree.
Cumberland	Dr. J. Vance McGougan.	Richmond	Dr. J. M. Covington.
Currituck	Dr. H. M. Shaw.	Robeson	Dr. H. T. Pope.
Dare	Dr. W. B. Fearing.	Rockingham	Dr. Sam Ellington.
Davidson	Dr. Joel Hill.	Rowan	Dr. W. L. Crump.
Davie	Dr. James McGuire.	Rutherford	Dr. W. A. Thompson.
Duplin	Dr. F. A. Arthur.	Sampson	Dr. R. E. Lee.
Durham	Dr. Z. T. Brooks.	Scotland	
Edgecombe	Dr. L. L. Staton.	Stanly	Dr. J. W. Littleton.
Forsyth	Dr. John Bynum.	Stokes	Dr. W. L. McCanless.
Franklin	Dr. E. S. Foster.	Surry	Dr. John R. Woltz.
Gaston	Dr. J. H. Jenkins.	Swain	Dr. R. L. Davis.
Gates	Dr. W. O. P. Lee.	Transylvania	Dr. M. M. King.
Graham	Dr. R. J. Orr.	Tyrrell	
Granville	Dr. S. H. Cannady.	Union	Dr. J. E. Ashcraft.
Greene	Dr. Joseph E. Grimsley.	Vance	Dr. W. T. & G. Cheat-
Guilford	Dr. R. L. Rierson.		ham.
Halifax	Dr. I. E. Green.	Wake	Dr. P. E. Hines.
Harnett	Dr. O. L. Denning.	Warren	Dr. T. B. Williams.
Haywood	Dr. F. M. Davis.	Washington	Dr. W. H. Ward.
Henderson	Dr. J. G. Waldrop.	Watauga	Dr. E. F. Bingham.
Hertford	Dr. John W. Tayloe.	Wayne	Dr. W. J. Jones.
Hyde	Dr. E. H. Jones.	Wilkes	Dr. J. W. White.
Iredell	Dr. Henry F. Long.	Wilson	Dr. W. S. Anderson.
Jackson	Dr. Wm. Self.	Yadkin	Dr. B. B. Hauser.
Johnston	Dr. L. D. Wharton.	Yancey	Dr. J. M. Fairchild.
Jones	Dr. S. E. Koonce.		

[You are asked to fill out and mail one of these forms to the Superintendent of Health of your county on or before the third of each month, that he may use it in making his report to the Secretary of the State Board.]

Have any of the following diseases occurred in your practice during the month just closed. If so, state number of cases.

Whooping-cough Typhoid Fever

Measles Typhus Fever

Diphtheria Yellow Fever

Scarlet Fever Cholera

Pernicious Malarial Fever Smallpox

Hemorrhagic Malarial Fever Cerebro-spinal Meningitis

What have been the prevailing diseases in your practice?

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Has any epidemic occurred among domestic animals? If so, what?

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What is the sanitary condition of your section, public and private?

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General Remarks:

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..... M. D.

..... 189

..... N. C.

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